

ATTACHMENT
RESPONSE TO COMMENTS ON
DRAFT NPDES PERMIT FOR
PUERTO RICO ELECTRIC POWER AUTHORITY (PREPA)
AGUIRRE POWER PLANT COMPLEX (PR0001660)

On June 11, 2010, the United States Environmental Protection Agency (EPA) issued a draft National Pollutant Discharge Elimination System (NPDES) permit (PR0001660) to the Puerto Rico Electric Power Authority (PREPA) for the Aguirre Power Plant Complex, its steam electric power generating facility in Salinas, Puerto Rico. Public notice of the draft permit was provided in the *Puerto Rico Daily Sun* newspaper on June 11, 2010. The public comment period for the draft NPDES permit expired on July 12, 2010.

According to 40 Code of Federal Regulations (CFR) §124.17, at the time that any final permit decision is issued under §124.15, EPA shall issue a response to comments. This response shall: (1) specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and (2) briefly describe and respond to all significant comments on the draft permit raised during the public comment period.

Comments were received from the following parties:

**Francisco E. Lopez, Division Head
Environmental Protection and Quality Assurance
Commonwealth of Puerto Rico
Puerto Rico Electric Power Authority**

The Puerto Rico Electric Power Authority submits the following comments on the Draft National Pollutant Discharge Elimination System Permit provided by the Environmental Protection Agency on June 11, 2010 for the Aguirre Power Plant Complex.

All comments received have been reviewed and considered in this final permit decision. A discussion and response to the comments received are included below.

Response to Comments Submitted by the NPDES Permit Applicant, the Puerto Rico Electric Power Authority (PREPA)

The following acronyms are used in these comments:

APA: Federal Administrative Procedures Act (5 USCS §706)

APPC: Aguirre Power Plant Complex

CWA: Clean Water Act

EDP: Effective Date of the NPDES Permit

EPA: Environmental Protection Agency

EQB: Puerto Rico Environmental Quality Board

IMZ: Interim Mixing Zone

ITIWQC: Intent to Issue a Water Quality Certificate

ITIWQCDAMZ: Intent to Issue a Water Quality Certificate, Define and Authorize a Mixing Zone, also referred to as the “Draft WQC”

IWS: Internal Waste Stream

MZ: Mixing Zone

NPDES: National Pollutant Discharge Elimination System

Outfall 00Xy: Outfall Serial Number 00Xy; where X is 1, 2, 3, 4 or 5 and y is a, b, c, d, e or f.

PRASA: Puerto Rico Aqueduct and Sewer Authority

PRWQSR: Puerto Rico Water Quality Standards Regulation

PREPA: Puerto Rico Electric Power Authority

WQC: Water Quality Certificate

PART I. GENERAL COMMENTS

1. Water Quality Certificate

On February 16, 2010 the EQB issued the ITIWQCDAMZ (Draft WQC) for the APPC. Within the designated comment period, on April 7, 2010, PREPA submitted its comments on the Draft WQC to the EQB with a copy to EPA. As of the date of the filing of this comment letter, no Final WQC has been issued.

Although EPA can issue a draft NPDES permit for a facility before the Final WQC has been issued, EPA cannot finalize the NPDES permit until the final WQC has been issued (40 CFR §124.53 (a)). In fact, 40 CFR §124.53 (c) mandates:

If State certification has not been received by the time the draft permit is prepared, the Regional Administrator shall send the certifying State agency:

- (1) A copy of a draft permit;
- (2) A statement that EPA cannot issue or deny the permit until the certifying State agency has granted or denied certification under §124.55, or waived its right to certify; and
- (3) A statement that the State will be deemed to have waived its right to certify unless that right is exercised within a specified reasonable time not to exceed 60

days from the date the draft permit is mailed to the certifying State agency unless the Regional Administrator finds that unusual circumstances require a longer time.

While PREPA assumes that EPA has filed this required notice with EQB, **it hereby requests that it be given a copy of it as soon as possible.**

Not only must issuance of the final permit wait until after EQB has issued a final WQC, PREPA also believes that no final NPDES Permit can be issued until after the end of the full appeal period for the WQC. By “full appeal period” PREPA means not only the period within which any “petition for reconsideration” or a request for a review by the Court of Appeals of Puerto Rico pursuant to the Puerto Rico Uniform Procedures Act (see § 8002F P.R. Environmental Public Policy Act, see also 40 CFR 124.55(e)) must be filed, but also the final resolution of all appeals must occur before the NPDES Permit can be finalized.

As EPA is aware, PREPA’s timely comments on the Draft WQC were extensive. Thus, there is a high likelihood that either there will be significant changes to the WQC before it is finalized or that PREPA will appeal that Certificate. In either case, it is highly probably that EPA will have to issue another draft NPDES permit, because of the changes in the underlying WQC. The issues which PREPA raised in its comments on the ITIWQCDAMZ are included in this comment letter and noted as being related to the ITIWQCDAMZ.

EPA Response 1:

EPA requested a water quality certificate from the EQB on March 9, 2004. A copy of this request is included as an attachment. EQB has resolved many of the concerns that PREPA expressed with the draft water quality certificate. These changes have been incorporated into the final NPDES permit. The effective date of this permit will be January 1, 2011, after the close of the appeal period of the final water quality certificate.

2. Pending Request for Alternate Thermal Discharge

In the comments it submitted to EQB on the Draft WQC, PREPA identified a number of needed changes, especially regarding the determination of the IMZ, the requirements to discharge from Outfall 001A at a temperature of no more than 38.5 °C (101.3 °F) at the end of the submerged outfall; and at no more than the applicable water quality standard of 32.2 °C (90 °F) at the edge of the Draft WQC’s proposed IMZ. While PREPA recognizes that the WQC perhaps must include the 32.2 °C (90 °F) water quality standard, the final NPDES permit does not need to contain this limit because EPA has, albeit without specifically stating so, approved PREPA’s long pending request for alternate thermal limits under § 316(a) of the CWA. This request was first filed in 1975, but no action on that request was taken by EPA for many years. Pursuant to its October 1992 NPDES permit renewal, in December 1992 PREPA filed a Plan of Study (POS) to update its pending 316(a) Demonstration and alternate thermal limit request. After several multi-year periods of inaction by EPA, and after EPA requested and received several updates to the POS, including related reports and plans, EPA concluded on April 17, 2000 that the Plan of Study was final. While EPA never approved the 2003 revision to the Quality Assurance/Quality Control (QA/QC) Plan for this 316 Update, EPA did agree that PREPA should proceed with the update. In March 2005 PREPA submitted the Aguirre 316 Type II Demonstration Study (APPC 316 Demonstration Study), which concluded that the cooling water-related intake and discharge

areas qualified as a “Low Impact” area under EPA’s CWA § 316 guidance. EPA has not, for reasons unclear to PREPA, included in the draft NPDES permit a final §316(a) determination on PREPA’s pending request for alternate thermal discharge limitations based on the APPC 316 Demonstration Study. However, the Fact Sheet (Page 3, Section “VII – OCEAN DISCHARGE CRITERIA”) to the draft permit states:

Based on the results of the demonstration submitted by PREPA and information available from other studies, EPA had determined that sufficient information is available to establish that the proposed discharge will not cause unreasonable degradation to the marine environment.

While this statement does not mirror word for word the statutory language of § 316(a) of the CWA, i.e. that the 2005 APPC 316 Demonstration Study and other studies have demonstrated that the discharge assures the projection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made surely EPA must have included a determination of compliance with the narrower 316(a) criteria when it made its broader determination that the discharge “will not cause unreasonable degradation to the marine environment.”

In any event,

- after 35 years, and
- the required expenditure of significant sums of PREPA rate payer’s money and PREPA’s limited personnel resources to support the 1975 and 2005 APPC Demonstration Reports, and
- because EPA is clearly basing other NPDES-related decisions on the APPC 316 Demonstration Report,

it would be arbitrary, capricious and an abuse of discretion for EPA to issue a renewal of the NPDES Permit at this time without it containing final action on the request for alternate thermal limits. It is clear that the 316(a) regulations (40 CFR 125 Subpart H) create a framework and expectation that the initial decision on a 316(a) request for alternate thermal limits will be done in a timely manner and generally within a single NPDES permit cycle, through such requirements as

- allowing “early screening information” to be submitted (40 CFR §125.72(a)),
- stating that subsequent consultations between the discharger and EPA are to be done “at the earliest practicable time (but not later than 30 days)” (id. at §125.72b), and
- requiring an application for the renewal of the 316(a) variance (i.e. the alternate thermal limits) to be filed within 60 days of when the NPDES renewal application is filed (id. at 125.72(c)).

PREPA filed its 316(a) Demonstration and Variance Request in 1975 (with an update in 1976) and there have been multiple permit renewals since then, including the October 1992 NPDES permit which required submission of an Update to the 1975 demonstration and request. Clearly, the lack of final agency action on this request at this time after an extensive two Volume Updated Demonstration Study report was submitted in 2005 would be deemed “unreasonably delayed” under the federal Administrative Procedures Act (APA). Under section 706(1) of the APA a

“reviewing court shall – compel agency action unlawfully withheld or unreasonably delayed.” 5 USCS § 706(1). PREPA would be within its right to bring a claim under section 706(1) of the APPA for unreasonable delay because EPA has failed to make a decision on PREPA’s 316(a) variance demonstration in the 35 years since it was submitted in 1975¹.

PREPA does not wish to bring such an action under the APA. However it also cannot accept a final NPDES permit that ignores the ample evidence provided in the APPC 316 Demonstration Study and instead imposes thermal discharge requirements derived from the Draft WQC. Therefore **PREPA requests that the final NPDES permit include a statement that its pending request for alternate discharge limits under CWA §316(a) has been granted.**

Further, PREPA requests that its long pending 316(a) request for alternate thermal limits be approved and that, among other things (see Part III, Comment 7 below), the alternate thermal limits include the following:

- i. An end of pipe maximum “Delta T” (ΔT – the change in discharge temperature as compared to intake temperature as measured at the end of the submerged outfall) of 18 °F.
- ii. An irregularly shaped mixing zone whose boundaries are defined by the modeling results contained in the APPC 316 Demonstration Study (related figures are included in Appendix 1). Further, compliance with the thermal water quality standard (32.2 °C/90 °F) is only required beyond the edges of the model defined mixing zone.
- iii. That the boundaries of edge of the mixing zone are suspended whenever the ambient water at the intake is above 88 °F. However, even during these events, the 18°F ΔT limit end of pipe discharge limit will still apply.

The rationale for this request and a more detailed description of the proposed mixing zone is discussed in Comment 7 of Part III below.

EPA Response 2:

This request is denied. EPA received a draft water quality certificate dated June 18, 2007 from the EQB which included the following effluent limitation:

“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). No thermal discharge or combination of thermal discharges into or onto the surface, estuarine and coastal waters shall be injurious to fish or shellfish or the culture or propagation of a balanced indigenous population thereof nor in any way affect the designated uses.”

¹ An agency action is unreasonably delayed if the “governing statute does not require action by a date certain; whereas an action is ‘unlawfully withheld’ if an agency fails to meet a clear deadline prescribed by Congress.” In *San Francisco Bay Keeper Inc. v. Browner*, 147 F. Supp. 2d 991, 1005 (2001). The court ruled that EPA did not have a present duty to define TMDLs for California because there had not been a constructive submission of TMDLs. The concept of constructive submission, in the context of the TMDL-related 303(d) lists, requires EPA to step in and define TMDLs for states that fail to submit any TMDLs for a “sufficiently long period of time.” *Id.* at 998.

EPA's position is that it cannot include a limit that would be less stringent than that included in a water quality certificate issued by the EQB. Therefore, EPA could not grant the 316(a) Variance Request. EQB has established a temperature limitation that is achievable by the permittee as part of a mixing zone authorized in a water quality certificate, consistent with the water quality standards of Puerto Rico. Therefore, a variance from the water quality standard for temperature is not necessary at this facility.

3. CWA §316(b) CWIS Related Requirements

PREPA appreciates the review done by EPA of its January 28, 2008 Impingement Mortality & Entrainment Characterization Study and Current Status Report Aguirre Power Plant Complex (APPC CWIS Study) as well as the preceding March 2005 Aguirre 316 Type II Demonstration Study (APPC 316 Demonstration Study). While, for the most part, PREPA agrees with the outcome of those evaluations (as summarized in Attachment IV to the Fact Sheet accompanying the draft NPDES Permit), PREPA believes that some aspects of the Determination are in error and hence that changes are needed in both the Determination document and in the 316(b) related portions of the draft Permit itself. Specifically, PREPA believes that the following conclusions of the 316(b) Determination are in error and must be modified:

- The existing CWIS cannot be considered BTA because the current traveling screen debris return system is not designed or operated in a manner that minimizes injury and mortality of injured fish.
- That “prevention of entrainment of fish and shellfish cannot be counted as part of the overall reduction of impingement mortality and entrainment.”²
- That to be BTA, the existing CWIS system must have its
 - fish return system modified to include fish buckets and gently sloped, smooth surfaces with an underwater discharge,
 - traveling screens operated continuously, and
 - wash water pressure reduced to “low” on its traveling screens wash system.

The basis for these conclusions and the resulting needed changes to the 316(b) related conditions in the proposed NPDES permit and the underlying 316(b) determination document are discussed in more detail in Comment 1 of Part IV below.

EPA Response 3:

The fact sheet issued with the draft permit documents decisions made by EPA up to the time of proposing the draft permit. This responsiveness summary documents decisions made in response to comments received. No changes can be made to the 316(b) review documentation included as part of the fact sheet, as any document that is part of the administrative record cannot be changed. EPA will respond to specific comments on the permit conditions representing Best Technology Available in Part IV below.

² Puerto Rico Electric Power Authority APPC 316 (b) Determination of Best Technology Available USEPA (June 2010 (APPC 2010 BTA Determination)).

PART II. SPECIFIC COMMENTS TO TABLES

1. Table A-1 (Outfall 001):

a. Oil and Grease (O&G): This requirement was commented on in PREPA’s comments on the ITIWQCDAMZ.

During the past five (5) years (2009, 2008, 2007, 2006 and 2005) compliance monitoring has indicated full compliance with the current O&G NPDES Permit limit (20,000 ug/L (20 mg/L) max. and 15,000 ug/L (15 mg/L) ave.) and, in fact, that O&G has only been detected once (February 2008 when the influent levels were higher than the effluent levels, indicating that the APPC was not adding O&G to its discharge).

Year	Jan.		Feb.		Mar.		Apr.	
	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2008	<5000	<5000	13300	11200	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000

Year	May		Jun.		Jul.		Aug.	
	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000

Year	Sept.		Oct.		Nov.		Dec.	
	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L	Influent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000

The draft permit has two (2) different requirements for this parameter. One requirement, that the “waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases, has a monthly monitoring frequency. It is PREPA’s intention on fulfilling this requirement, if it is in the

final permit, through a visual inspection of the outfall.

The other requirement includes numerical limits of 15.0 and 10.0 mg/L, in the Daily and Average Maximums, respectively, with monitoring frequency twice per month. Based on the 5 years worth of monitoring data which is summarized above, which demonstrates that PREPA does not add O&G, and consistent with our comments to the ITIWQCDAMZ, **PREPA requests the elimination of the Oil and Grease parameter from Table A-1.**

Alternatively, if EPA decides it must keep O&G related limits for this outfall, **PREPA requests that the narrative requirement be deleted and that the final Permit just retain the current permit's Daily Maximum and Daily Average numerical limits of 20.0 and 15.0 mg/L subject to the following monitoring condition:**

Monthly monitoring for this parameter is required for 1 year from EDP. After this time, permittee may request, based upon the submitted results, that further sampling and analyses for this parameter either be eliminated or its frequency reduced to quarterly.

EPA Response II.1.a

EPA has eliminated the narrative limitation for oil and grease from all outfalls, as this limitation has not been included in the final water quality certificate. EQB included a monthly monitoring requirement for oil and grease, as a study to determine whether limitations were necessary. EPA had included technology based limitations, based either on Region 2 policy or the federal effluent limitation guideline (ELG) for the steam electric point source category (40 CFR 423). These numeric limitations will be retained in place of the EQB monitoring requirement. EPA has reduced the monitoring frequency from twice per month to monthly.

b. Color:

- i. **Monitoring Location** -- This requirement was included in PREPA's comments on the ITIWQCDAMZ. The "B" note requires two (2) color monitoring points: effluent and receiving water body. Results of color monitoring in the "receiving water" will not be representative of the APPC color related contributions because the Outfall 001 point is located one mile into the Jobos Bay. **PREPA requests that the monitoring point be limited to the effluent consistent with the current NPDES Permit.**
- ii. **Monitoring Frequency** -- This requirement was included in PREPA's comments on the ITIWQCDAMZ. **PREPA requests that the following note be added for this parameter:**

Monthly monitoring for this parameter is required for 1 year from EPD. After this time permittee may request, based upon the submitted results, that further sampling and analyses for this parameter either be eliminated or its frequency reduced to quarterly.

EPA Response II.1.b

EPA has included the permit conditions as included in the final water quality certificate issued by EQB on September 16, 2010, which requires a monitoring study to determine background levels of color in the receiving water.

c. **BOD₅**: This requirement was included in PREPA’s comments on the ITIWQCDAMZ.

PREPA requests that the BOD₅ parameter be eliminated from Table A-1 of the NPDES Permit. As summarized in the table below, PREPA’s records for this parameter during the last six (6) years showed full compliance with the current NPDES Permit limit (45,000ug/L/45 mg/L). In fact, BOD₅ has only been detected once (in 2006 at a concentration of 6200 ug/L (6.2 mg/L). Also, PREPA has completed the connection of the APPC sanitary system to PRASA and the all of the former underground injection systems are unused. Permanent closure of the underground injection systems is in progress under the Alternate Compliance Plan approved by EQB.

BOD₅ Analyses Results µg/L						
Year	2004	2005	2006	2007	2008	2009
Result	<5000	<5000	6200	<5000	<5000	<5000

If this parameter is retained in the final NPDES Permit, **PREPA requests that the monitoring frequency remain annually, consistent with the current permit.** There is no rational basis to increase the sampling frequency when the major source of BOD₅ has been eliminated and, even before source elimination, full compliance has been demonstrated. Finally, consistent with EPA sampling guidance, **PREPA requests that:**

- a. **the sample type be changed to “grab” instead of “composite” due to the fact that the quantity of oxygen demanding substances in the sample will change as the composite sample is being collected (as any such substances consume the oxygen in the sample) and**
- b. **that the requirement be eliminated upon completion of the closure of the last sanitary sewage underground injection systems.**

Finally, the Draft NPDES Permit establishes a numerical limit of 30.0 mg/L for this parameter as a monthly average. No matter whether the final permit establishes an annual or a monthly sampling requirement, **only a Daily Maximum limit (consistent with the current permit- 45.0 mg/L) should be included since the most frequent sampling under discussion will only be once per month.**

EPA Response II.1.c

EQB has eliminated the BOD₅ limitation from the final water quality certificate. In light of this decision, EPA has considered this request and the monitoring data, and has removed the BOD₅ requirements from Table A-1.

- d. **Dissolved Oxygen (DO):** This requirement was included in PREPA's comments on the ITIWQCDAMZ.

PREPA requests that the DO parameter's monitoring frequency be set to monthly, instead of daily due to the Outfall 001 flow and compliance history. The current permit frequency for this parameter is weekly. As shown by the BOD₅ data included in comment c above, the APPC does not discharge oxygen demanding substances through this outfall. It is contradictory that a parameter with full compliance has the imposition of monitoring frequency increased instead of decreased. In addition, because PREPA withdraws and discharges (through this outfall) water from Jobos Bay which historical data indicates can have quite variable DO levels, PREPA requests that the **DO limit be established as a Net Limitation.**

EPA Response II.1.d.

EPA has maintained the current permit monitoring frequency of weekly, which is consistent with the final EQB water quality certificate.

- e. **Copper and Lead:** In June 2007 the PREQB issued the first ITIWQC, which was commented on by PREPA in August 2007 within the provided commenting period. Our comment was the following: "PREPA requests to eliminated or reduce the sampling frequency for these parameters based upon the attached results (five year period)." In February 2010, the PREQB issued the ITIWQCDAMZ granting this PREPA request. Therefore, PREPA respectfully requests the elimination of these parameters.

EPA Response II.1.e.

EPA has included limitations for copper and lead from the previous permit, updated for the current Puerto Rico water quality standards. EPA has retained these limits to be consistent with EPA Region 2's Antbacksliding policy.

- f. **Mercury, Silver and Zinc:** In 2005 PREPA submitted to PREQB information (Study analyses results from 2003 to 2004) validating and updating its request for the elimination of these parameters from WQC. In addition in April 2007, PREPA submitted for validation to EPA Region II the documentation related for the Mercury Method 245.1, which detection limit is lower than the regulatory limit (0.051 ug/L). This validation still is pending. Neither the 2007 ITIWQC nor the 2010 ITIWQCDAMZ included monitoring for these parameters. **Hence, PREPA respectfully requests the elimination of these parameters.**

EPA Response II.1.f. *EPA had included a mercury monitoring requirement to determine reasonable potential to cause or contribute to an exceedance of the Puerto Rico water quality standard for mercury. EPA believes that the only analytical methods sufficiently sensitive to determine reasonable potential and assess compliance with permit limitations for mercury are EPA Methods 1631E and 245.7. EPA requires inclusion of Method 1631E as this is the most sensitive method for mercury monitoring available under 40 CFR Part 136. EPA has included limitations for silver and zinc from the previous permit, updated for the current Puerto Rico water quality standards, in accordance with EPA Region 2's Antbacksliding policy.*

- g. **Total Suspended Solids (TSS):** Neither the ITIWQC 2007 nor the ITIWQCDAMZ 2010 included this parameter. Also, the current NPDES Permit has no requirement for monitoring this parameter at outfall 001 because the TSS monitoring requirement is associated to the IWS

001a, the largest source (by volume) of water flowing through Outfall 001. Therefore, **PREPA requests the elimination of this parameter.** Alternatively, **if EPA decides to maintain monitoring requirement for this parameter, the specified monitoring frequency should be quarterly** instead of monthly due to the demonstrate full compliance with the TSS limit at IWS 001a. Also, **if the limit and monitoring requirement remains, PREPA requests that they be applied to IWS 001a (Table A-2) and be expressed as a Net Limitation and that the Monthly Average Limit be eliminated** because the required sampling frequency is one per month and the calculation of an average limit is not possible.

EPA Response II.1.g.

The TSS limit of 30.0 mg/l as a monthly average and 100.0 mg/l as a daily maximum have been included as required by the Steam Electric Point Source Category ELG (40 CFR 423.13(e) Best Control Technology (BCT)).

- h. Polychlorinated Biphenyls (PCBs):** The current NPDES Permit has no monitoring for this parameter. The current monitoring requirement for PCBs applies only to IWS 001a. Therefore, **PREPA requests that PCBs be eliminated from this outfall. Alternatively, PREPA requests that the monitoring frequency be modified by adding the following clause:**

Required one (1) year of quarterly monitoring [instead of monthly – see the footnote of the current NPDES Permit for IWS 001a] starting from EDP, after which if no PCBs have been detected, monitoring frequency will be annually.

It is contradictory that a parameter with full compliance has the imposition of monitoring frequency significantly increased instead of decreased.

In addition, if a numerical limitation and monitoring requirement for PCBs is retained, **PREPA requests that the Sample Type be changed to “grab”** instead of “composite” due to the homogenous nature of the outfall 001 discharge.

EPA Response II.1.h.

EPA has included the limitation for PCBs as required by federal effluent limitations guidelines (40 CFR 423.13(a) Steam Electric Point Source Category). EPA has revised the sampling frequency and type to annual grab samples.

- i. Cadmium:** Neither in the TIWQC 2007 nor the ITIWQCDAMZ 2010 from the EQB included monitoring requirements for this parameter. Hence, **PREPA respectfully requests the elimination of this parameter.**

EPA Response II.1.i.

EPA has retained this limitation from the previous permit consistent with EPA Region 2’s Antibalancing Policy.

- j. Discharge Description:** The description of this Outfall should also include wastewaters from Condenser Screen Washwater and from the Aguirre Power Complex; Equipment Hydrostatic Tests. Regarding Hydrostatic Test, please refer to the recommended addition of Special Condition 27 in Part III below.

EPA Response II.1.j

EPA has made the changes to the discharge description as provided in PREPA's comment.

k. Temperature: See the Comment 7 on Part III below.

EPA Response II.1.k

EPA will respond to this comment in Part III.

2. Table A-1a (IWS 001a):

PREPA has no comments.

3. Tables A-1b, A-1c and A-1d (Cooling Tower-related Internal Wastestreams):

a. PREPA requests that the monitoring requirement for the 126 Priority Pollutants parameters be deleted for IWSs 001b, 001c and 001d due to the determination (through engineering calculations) that no-substance containing these pollutants can be discharged from the cooling towers. Included in Appendix 2 are three letters which serve as the basis for this request (which has been accepted for this same NPDES permitting purposes at other PREPA power plants). The first one was sent from PREPA to EPA (Regional Administrator – Date February 26, 1993) and included a determination of “the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR Part 136 except Zinc parameter.” The second letter (from EPA Robert F. Vaughn, Water Permits and Compliance Branch) to PREPA (Ángel L. Rivera, Director, Planning and Environmental Protection – Date July 14, 1993) agreed with our previous determination. Therefore, PREPA was exempted by USEPA in the current permit to monitor the 126 Priority Pollutants parameters at these cooling tower related IWS discharge points.

The third letter (From PREPA to EPA - Mr. Carlos O'Neill, Chief Enforcement and Superfund Branch date August 19, 2003) is documents our determination that the propose tower chemical substances treatment (PREPA conducted a Pilot Test from December/2004 to January/2005) does have not contain substances in the following lists: Part 116.4 - Hazardous Substances Table A and B, designated as hazardous substances in accordance with section 311(b)(2)(A) of the Clean Water Act and Part 401.15 – Toxic Pollutants Table, designated as toxic pollutants in accordance with section 307 (a)(1) of the Clean Water Act.

Alternatively, if the monitoring requirement for 126 Priority Pollutants parameters is not deleted, PREPA requests to change the following footnote to:

** The first monitoring shall be performed at EDP + 6 months after that. For all Priority Pollutants which are not detected during this monitoring event, no further sampling and analyses will be required for the duration of this permit.

Also, **PREPA requests that the Sample Type be changed to grab** instead of composite.

Finally, **it appears that the reference symbols “**” for measurement frequency for these parameters on Table A-1b are missing.**

EPA Response II.3.a.

EPA has reviewed the documentation and removed the requirement for priority pollutant scan from the outfalls internal to Outfall 001.

b. Chromium and Zinc: these parameters should not be included for IWSs 001b, 001c and 001d due to the reason explained in the previous comment. Also, Cr is not associated IWS 001b at the current NPDES Permit.

EPA Response II.3.b.

This request is denied. These limitations are included as required by federal effluent limitation guidelines at 40 CFR 423.13(d)(1)(2).

c. Table A-1b (IWS 001b):

- i.** According to the heading, this table's applies to IWS 001a. PREPA believes that this should refer to IWS serial number 001b. If this is correct, **PREPA requests that thus change be made.**

- ii.** **If the final permit contains sampling requirements for Cr and Zn (and Free Available Chlorine (FAC))** then, based on the Cooling Tower's basins maximum capacity of 130,000 gallons each, **PREPA requests that the Daily Maximum and Daily Average values for this parameters (Chromium and Zinc) be changed as follows:**

	Maximum (Kg/day)	Average (Kg/day)
FAC	0.25	0.1
Cr	0.1	0.1
Zn	0.50	0.50

EPA Response II.3.c.

EPA has incorporated the revised limitations provided by PREPA due to the difference in flow used in the limitation calculation.

d. Tables A-1c and A1-d (IWSs 001c and 001d):

If the final NPDES permit includes sampling requirements for Cr and Zn at these IWSs, then **PREPA requests that the limits be expressed only as Daily Maximums** because the measurement frequency is monthly and an average calculation is not possible.

EPA Response II.3.d.

This request is denied. These limitations are included as required by federal effluent limitation guidelines at 40 CFR 423.13(d)(1)(2). PREPA may report on the discharge monitoring reports (DMRs) the monthly result as a monthly average.

4. Table A-2 (Outfall 002):

- a. **BOD₅**: This requirement was included in PREPA’s comments on the ITIWQCDAMZ.

PREPA requests that the BOD₅ parameter at this Outfall be eliminated from the NPDES Permit. Monitoring records for this parameter during the last six (6) years (summarized below) showed full compliance with the current NPDES Permit limit (45,000 ug/L or 45 mg/L). The highest result was 29,500 ug/L (29.5 mg/L), less than 70% of the limit. As discussed above, PREPA has completed the connection of the APPC sanitary system to the PRASA collection system and all underground injection systems are unused. Currently, the final closure of each of the underground injection systems is in progress under the Alternate Compliance Plan approved by EQB. Thus a major potential source of BOD₅ to this Outfall (through stormwater runoff) has been eliminated.

BOD₅ Analyses Results µg/L						
Year	2004	2005	2006	2007	2008	2009
Result	<5000	16,800	9,700	29,500	<5000	6,080

Alternatively, if the final Permit contains this parameter, **PREPA requests that the limit be expressed as a Daily Maximum at the same level as the current Permit (45.0 mg/L)** because the sampling frequency is “annually” and so there will be only one data point a year. Because one sample had a recorded BOD₅ of 29.5 mg/L and because the BOD₅ measure method makes the resulting levels variable (even for homogeneous waste streams) setting the limit at 30 mg/L is not necessary to meet PRWQS in Jobos bay. Finally, if the requirement is included in the final Permit, **PREPA requests that the Permit indicate that monitoring for BOD₅ only has to be done until completion of the closure of the underground injection systems** in accordance with the PREQB approved plans.

EPA Response II.4.a.

EPA has revised the monitoring frequency to annually, as required by the EQB final water quality certificate.

b. Color:

- i. **Monitoring Location** -- This requirement was included in PREPA’s comments on the ITIWQCDAMZ.

The “B” note requires two color monitoring points: effluent and receiving water body. **PREPA requests that the monitoring point be limited to the effluent** consistent with the current NPDES Permit. The results of color monitoring in the “receiving water” will not be useful in evaluating the APPC’s color contributions because Outfall 002 discharge point is near the Aguirre Fuel Dock.

- ii. **Monitoring Frequency** -- This requirement was included in PREPA’s comments on the ITIWQCDAMZ. **PREPA requests that the following note be added to this parameter:**

Monthly monitoring for this parameter is required for one (1) year from EPD. After this time, permittee may request that, based upon the submitted results, further sampling and analyses of or this parameter either be eliminated or its frequency reduced to quarterly.

EPA Response II.4.b.

EPA has included the permit conditions as included in the final water quality certificate issued by EQB, which requires a monitoring study to determine background levels of color in the receiving water.

- c. **Dissolved Oxygen (DO):** This requirement was included in PREPA’s comments on the ITIWQCDAMZ.

PREPA requests that the DO parameter’s monitoring frequency be changed to monthly instead of daily based upon the very low levels of oxygen demanding substances discharged by the APPC through Outfall 002. It is contradictory to typical practice for a parameter with which a permittee has been in consistent compliance to have its monitoring frequency increased instead of decreased. Also, PREPA plans to install aeration pumps upstream of Outfall 002, to comply with the DO water quality standard for SB. Under the recent PRWQSR, the Jobos Bay classification was changed from SC to SB, thus changing the applicable water quality standard from 5 mg/L to 4 mg/L.

EPA Response II.4.d.

EPA has revised the monitoring frequency to weekly, as required by the final EQB water quality certificate.

- d. **Oil and Grease (O&G):** This requirement was included in PREPA’s comments on the ITIWQCDAMZ.

During the past five (5) years (2009, 2008, 2007, 2006 and 2005) compliance monitoring has indicated full compliance with the current O&G NPDES Permit limit (20,000 ug/L (20 mg/L) max. and 15,000 ug/L (15 mg/L) ave.) and, in fact, that O&G has not been detected, indicating that the APPC is not adding O&G to its discharge).

Year	Jan.	Feb.	Mar.	Apr.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

Year	May	Jun.	Jul.	Aug.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

Year	Sept.	Oct.	Nov.	Dec.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

The draft permit has two (2) different requirements for this parameter. One requirement, that the “waters of Puerto Rico be substantially free from floating petroleum oils and greases as well as petroleum derived oils and greases” has a monthly monitoring frequency. It is PREPA’s intention on fulfilling this requirement, if it is in the final permit, through a visual inspection of the outfall.

The other requirement includes numerical limits of 15.0 and 10.0 mg/L, in the Daily and Average Maximums, respectively, with monitoring frequency twice per month. Based on the 5 years worth of monitoring data which is summarized above, which demonstrates that PREPA does not add O&G, and consistent with our comments to the ITIWQCDAMZ, **PREPA requests the elimination of the Oil and Grease parameter from Table A-2.** Alternatively, if EPA decides it must keep O&G related limits for this outfall, **PREPA requests that the narrative requirement be deleted and that the final Permit just retain the current permit’s Daily Maximum and Daily Average numerical limits of 20.0 and 15.0 mg/L subject to the following monitoring condition:**

Monthly monitoring for this parameter is required for 1 year from EPD. After this time, permittee may request, based upon the submitted results, that further sampling and analyses for this parameter either be eliminated or its frequency reduced to quarterly.

EPA Response II.4.d

EPA has eliminated the narrative limitation for oil and grease from all outfalls, as this limitation has not been included in the final water quality certificate. EQB included a monthly monitoring requirement for oil and grease, as a study to determine whether limitations were necessary. EPA had included technology based limitations, based on Region 2 BPJ policy and federal effluent limitation guidelines. These numeric limitations will be retained in place of the EQB monitoring requirement. EPA has reduced the monitoring frequency from twice per month to monthly.

- e. **Total Suspended Solids (TSS):** This requirement was included in PREPA’s comments on the ITIWQCDAMZ.

The draft permit lists TSS on Table A-2 but it does not include a TSS limit, required monitoring frequency and/or sample type. PREPA agrees that there is no reason for any TSS requirements for this Outfall. The monitoring records for this parameter during the past five (5) years (2009, 2008, 2007, 2006 and 2005) showed full compliance with the current NPDES Permit maximum limit (100,000 ug/L/ 100 mg/L max.) with TSS being detected only 3 times out of 20 quarterly measurements.

Year	Jan.	Feb.	Mar.	Apr.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<4000	<4000	<4000	<4000
2008	<4000	<4000	<4000	<4000
2007	5000	<4000	<4000	<4000
2006	5000	5000	8000	<4000
2005	<4000	<4000	<4000	<4000

Year	May	Jun.	Jul.	Aug.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<4000	<4000	5000	<4000
2008	<4000	9000	<4000	<4000
2007	1600	7000	<4000	<4000
2006	<4000	<4000	<4000	<4000
2005	<4000	7000	<4000	<4000

Year	Sept.	Oct.	Nov.	Dec.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<4000	<4000	<4000	<4000
2008	4000	<4000	<4000	<4000
2007	<4000	<4000	<4000	<4000
2006	5000	<4000	<4000	6000
2005	<4000	37000	<4000	<4000

If however, the draft Permit is in error and EPA intended to include a TSS limit, then **PREPA requests that the current limit (100 mg/L) be retained, with a monitoring frequency of monthly and with a “grab” sample type. In addition, the following note should be included:**

Monthly monitoring for this parameter is required for 1 year from EPD. After this time, permittee may request, based upon the submitted results, that further sampling and analyses for this parameter either be eliminated or its frequency reduced to quarterly.

EPA Response II.4.e.

EPA has retained the limit from the previous permit of 100 mg/L, with a grab sample type and monthly monitoring frequency.

- f. Cadmium and COD:** In 2005 PREPA submitted to EQB information (Study analyses results from 2003 to 2004) validating and updating the request for the elimination of these parameters from the WQC. Neither the 2007 ITIWQC nor the 2010 ITIWQCDAMZ included monitoring requirements for these parameters. Hence, **PREPA respectfully requests the elimination of these parameters.**

Related to COD parameter, if this parameter is retained in the final permit, **PREPA requests that the current Wet Weather Limit's footnote in the current permit be retained:**

Limit applies when storm water runoff does not bleed into oil separator tank. In order to allow application of proper wet weather limit, PREPA will maintain a log, which documents when storm water runoff bleeds into the oil separator tank.

EPA Response II.4.f.

This request is denied. The cadmium limit was retained from the previous permit. The limit for COD was included consistent with Region 2's Revised Guidance for Cooling Water and Storm Water Runoff, dated September 5, 1991.

- g. Mercury:** The footnote reference in the draft permit for mercury is to the PRWQS. However, this parameter was not included in the February 2010 ITIWQCDAMZ. Therefore, **PREPA respectfully requests the elimination of this parameter from Table A-2 in the Permit.**

EPA Response II.4.g.

This request is denied. The limitation for mercury was retained from the previous permit in accordance with EPA Region 2's Antibracksliding policy.

- h. Silver and Lead:** In its August 2007 comment on the June 2007 ITIWQC PREPA stated: "PREPA requests to eliminate or reduce the sampling frequency for these parameters based upon the attached results (five year period)." EQB subsequently granted the request through the February 2010 ITIWQCDAMZ. **Therefore, PREPA respectfully requests the elimination of these parameters from Table A-2 in the Permit.**

EPA Response II.4.h.

This request is denied. The limitations for silver and lead were retained from the previous permit in accordance with EPA Region 2's Antibracksliding policy.

5. Table A-3 (Outfall 003):

- a. BOD₅:** This requirement was included in PREPA's comments on the ITIWQCDAMZ.

PREPA requests that the BOD₅ parameter at this Outfall be eliminated from the NPDES Permit. Monitoring records for this parameter during the last six (6) years (summarized below) showed full compliance with the current NPDES Permit limit (45,000

ug/L or 45 mg/L). The highest result was 11,000 ug/L (11.0 mg/L), less than 25% of the limit. As discussed above, PREPA has completed the connection of the APPC sanitary system to the PRASA collection system and all underground injection systems are unused. Currently, the final closure of each of the underground injection systems is in progress under the Alternate Compliance Plan approved by EQB. Thus a major potential source of BOD₅ to this Outfall (through stormwater runoff) has been eliminated.

BOD ₅ Analyses Results µg/L						
Year	2004	2005	2006	2007	2008	2009
Result	<5000	11,000	<5000	10,800	<5000	<5000

Alternatively, if the final Permit contains this parameter in the NPDES Permit, **PREPA requests that the limit be expressed as a Daily Maximum at the same level as the current Permit (45.0 mg/L)** because the sampling frequency is “annually” and so there will be only one data point a year. Finally, if the requirement is included in the final Permit, **PREPA requests that the Permit indicate that monitoring for BOD₅ only has to be done until completion of the closure of the underground injection systems in accordance with the EQB approved plans.**

EPA Response II.5.a.

EPA has revised the monitoring frequency to weekly, as required by the EQB water quality certificate.

b. Color:

- i. **Monitoring Location** -- This requirement was included in PREPA’s comments on the ITIWQCDAMZ. The “β” note requires two color monitoring points: effluent and receiving water body. Consistent with the current NPDES Permit, **PREPA requests that the monitoring requirement be limited to the effluent.** The results of color monitoring in the “receiving water” will not be representative in determining the APPC contributions to the color of the water because Outfall 002 discharge point is near to Aguirre Fuel Dock.
- ii. **Monitoring Frequency** -- This requirement was included in PREPA’s comments on the ITIWQCDAMZ. **PREPA requests that the following note be added to this parameter:**

Monthly monitoring for this parameter is required for one (1) year from EPD. After this time, permittee may request that further sampling and analyses for this parameter may, based upon the submitted results, either be eliminated or its frequency reduced to quarterly.

EPA Response II.5.b.

EPA has included the permit conditions as included in the final water quality certificate issued by EQB, which requires a monitoring study to determine background levels of color in the receiving water.

- c. **Cyanide, Free:** This requirement was included in PREPA's comments on the ITIWQCDAMZ.

PREPA requests that this parameter be eliminated from Table A-3 because its records for this parameter over the past five (5) years (2009, 2008, 2007, 2006 and 2005) (summarized in the Table below) showed not only full compliance with the current NPDES Permit limit (1.0 ug/L), but also that free cyanide has not been detected during 20 quarter monitorings. In addition, the current Total Cyanide analysis includes the Species from Strong Metal Complexes, Weak to Moderately Strong Metal Complexes (Available Species) and Free Species.

Year	Jan.	Feb.	Mar.	Apr.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<1.0	<1.0	<1.0	<1.0
2008	<1.0	<1.0	<1.0	<1.0
2007	<1.0	<1.0	<1.0	<1.0
2006	<1.0	<1.0	<1.0	<1.0
2005	<1.0	<1.0	<1.0	<1.0

Year	May	Jun.	Jul.	Aug.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<1.0	<1.0	<1.0	<1.0
2008	<1.0	<1.0	<1.0	<1.0
2007	<1.0	<1.0	<1.0	<1.0
2006	<1.0	<1.0	<1.0	<1.0
2005	<1.0	<1.0	<1.0	<1.0

Year	Sept.	Oct.	Nov.	Dec.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<1.0	<1.0	<1.0	<1.0
2008	<1.0	<1.0	<1.0	<1.0
2007	<1.0	<1.0	<1.0	<1.0
2006	<1.0	<1.0	<1.0	<1.0
2005	<1.0	<1.0	<1.0	<1.0

Alternatively, **if Free Cyanide is retained on Table A-4 in the NPDES Permit, PREPA requests that the following (Bold italicized) clause be changed to note 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 the permittee may request, based upon the submitted results, that further sampling and analyses for this parameter be eliminated.*** The monitoring program shall commence...[back to the proposed note]

Further, PREPA understands that the referenced letter Greek e in the Draft NPDES Permit (on page 15 of 55) that refers to Special Condition 8 is a typo error. It should be a reference to Special Condition 4. **PREPA requests that this correction be made.**

EPA Response II.5.c.

EQB has eliminated the limitation for free cyanide from the final water quality certificate. In light of this decision, EPA has considered this request and the monitoring data, and removed the limitation for free cyanide.

- d. Dissolved Oxygen (DO):** This requirement was included in PREPA's comments on the ITIWQCDAMZ.

PREPA requests that the DO parameter's monitoring frequency be set to monthly, instead of daily due to the Outfall 003 flow and compliance history. The current permit frequency for this parameter is weekly. It is contradictory to typical practice for a parameter with which a permittee has been in consistent compliance to have its monitoring frequency increased instead of decreased. In addition, because PREPA cannot control the DO levels in Jobos Bay near its intake, PREPA requests that, if intake DO levels are less than 5.0 mg/L, a note be attached to this limit which states:

If DO levels in the intake are 5.0 mg/L or less, then the effluent DO levels must be no lower than the intake levels.

EPA Response II.5.d.

EPA has revised the monitoring frequency to weekly, as required by the EQB water quality certificate.

- e. Oil and Grease (O&G):** This requirement was included in PREPA's comments on the ITIWQCDAMZ.

During the past five (5) years (2009, 2008, 2007, 2006 and 2005) compliance monitoring has indicated full compliance with the current O&G NPDES Permit limit (20,000 ug/L)(20 mg/L) max. and 15,000 ug/L (15 mg/L) ave.) and, in fact, that O&G has only been detected once (February 2008).

The draft permit has two (2) different requirements for this parameter. One requirement, that the "waters of Puerto Rico be substantially free from floating petroleum oils and greases as well as petroleum derived oils and greases" with a monthly monitoring frequency. It is PREPA's intention on fulfilling this requirement, if it is in the final permit, through a visual inspection of the Outfall.

The other requirement includes numerical limits of 15.0 in the Daily Maximum column, respectively, with monitoring frequency of monthly. Based on the 5 years worth of monitoring data which is summarized below, which indicates that PREPA has only detected O&G in this Outfall during 1 (of 20) sampling events demonstrates that PREPA does not

add O&G. Consistent with our comments to the ITIWQCDAMZ, PREPA requests the elimination of the Oil and Grease parameter from Table A-3.

Alternatively, if EPA decides it must keep O&G related limits for this Outfall, PREPA requests that the narrative requirement be deleted and that the final Permit just retains the current permit's Daily Maximum numerical limits of 20.0 mg/L subject to the following monitoring condition:

Monthly monitoring for this parameter is required for 1 year from EPD. After this time, permittee may request, based upon the submitted results, that further sampling and analyses for this parameter either be eliminated or its frequency reduced to quarterly.

Year	Jan.	Feb.	Mar.	Apr.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	13,300	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

Year	May	Jun.	Jul.	Aug.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

Year	Sept.	Oct.	Nov.	Dec.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

EPA Response II.5.e.

EPA has eliminated the narrative limitation for oil and grease from all outfalls, as this limitation has not been included in the final water quality certificate. EQB included a monthly monitoring requirement for oil and grease, as a study to determine whether limitations were necessary. EPA had included technology based limitations, based on Region 2 BPJ policy and federal effluent limitation guidelines. These numeric limitations will be retained in place of the EQB monitoring requirement. EPA has reduced the monitoring frequency from twice per month to monthly.

- f. **Total Suspended Solids (TSS):** This requirement was included in PREPA’s comments on the ITIWQCDAMZ.

PREPA requests that the limit and monitoring requirement for TSS parameter be eliminated from Table A-3 because this parameter has been in compliance with the current NPDES Permit (100.0 mg/L max. and 30.0 mg/L ave.) during the past five (5) years as shown on the following table:

Year	Jan.	Feb.	Mar.	Apr.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	8.0	<4.0	<4.0	<4.0
2008	<4.0	<4.0	9.0	<4.0
2007	<4.0	6.0	<4.0	<4.0
2006	10.0	5.0	<4.0	10.0
2005	7.0	18.0	20.0	9.0

Year	May	Jun.	Jul.	Aug.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<4.0	<4.0	7.0	<4.0
2008	<4.0	<4.0	<4.0	5.0
2007	29.0	<4.0	<4.0	<4.0
2006	<4.0	<4.0	27.0	<4.0
2005	22.0	<4.0	14.0	<4.0

Year	Sept.	Oct.	Nov.	Dec.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	15.0	<4.0	<4.0	7.0
2008	<4.0	<4.0	<4.0	<4.0
2007	<4.0	<4.0	<4.0	<4.0
2006	6.0	<4.0	<4.0	6.0
2005	15	12	<4.0	<4.0

Moreover, more than 63% of the samples have had TSS levels below the quantification level. Alternatively, if O&G related requirements for Outfall 003 are not eliminated before the Permit is finalized, then the following footnote should be added:

Monthly monitoring for this parameter is required for 1 year from EDP. After this time, permittee may request that, based upon the submitted results, further sampling and analyses for this parameter may either be eliminated or its frequency reduced to quarterly”.

PREPA requests that the maximum limit be retained at 100 mg/L (according the current limit) and limits be expressed only as Daily Maximums because the measurement frequency is monthly and an average calculation is not possible.

EPA Response II.5.f.

This request is denied. EPA included the 30.0 mg/L Monthly Average and Daily Maximum of 100.0 mg/L based on federal effluent limitation guidelines at 40 CFR 423.13(e).

- g. Flow:** See Comment 1 in Part III below (Special Conditions).
- h. Copper:** In the June 2007 ITIWQC issued by the EQB, commented by PREPA within the provided commenting period, PREPA requested the following: “PREPA requests to eliminate or reduce the sampling frequency for this parameter based upon the attached results (five year period).” In the February 2010 ITIWQCDAMZ, the EQB granted PREPA’s petition. Consequently, **PREPA respectfully requests the elimination of this parameter.**

EPA Response II.5.h.

EPA has retained this limitation from the previous permit consistent with EPA Region 2’s Antibacksliding Policy.

- i. Mercury:** This parameter is not included in the ITIWQCDAMZ. Therefore, **PREPA respectfully requests the elimination of this parameter.**

EPA Response II.5.i.

EPA has removed the mercury monitoring requirement at this outfall due to the inclusion of mercury monitoring/limitations at other outfalls.

- j. Discharge Description:** The description of this Outfall should add contributions of wastewaters from Condenser Cooling Water Screen Washwater.

EPA Response II.5.j.

EPA has modified the discharge description as requested by the applicant.

6. Table A-3a (Internal Wastestream):

- a. Total Suspended Solids (TSS) Copper and Iron parameters:** **PREPA requests that the proposed Daily Average Limits for these parameters be eliminated** because the required monitoring frequency is only one per month and the hence calculation of an average is not possible. In addition, for the TSS parameter, **PREPA requests that the Sample Type be changed to “grab” instead of “composite” or, in the alternative, add “Time – Proportioned composite acceptable”**, consistent with the comparable current Permit requirement.

EPA Response II.6.a

This request is denied. PREPA may report the results of monthly sampling as a daily average. These limitations were included as required by federal effluent limitation guidelines. EPA has added the footnote that time-proportioned composites are acceptable.

- b. Oil & Grease (O&G) and Copper parameters:** Both parameters do not have units assigned. **PREPA requests that, consistent with the limits in the current NPDES Permit the units for both be mg/L.**

EPA Response II.6.b.

EPA has included units of mg/l for Oil and Grease and Copper in Table A-3a..

7. Table A-4 (Outfall 004):

a. **BOD₅:** This requirement was included in PREPA’s Ccomments on the ITIWQCDAMZ.

PREPA requests that the BOD₅ parameter at this Outfall be eliminated from the NPDES Permit. Monitoring records for this parameter during the last six (6) years (summarized below) showed full compliance with the current NPDES Permit limit (45,000 ug/L or 45 mg/L). The highest result was 20,300ug/L (20.3 mg/L), less than 50% of the current limit. As discussed above, PREPA has completed the connection of the APPC sanitary system to the PRASA collection system and all underground injection systems are unused. Currently, the final closure of each of the underground injection systems is in progress under the Alternate Compliance Plan approved by EQB. Thus a major potential source of BOD₅ to this Outfall (through stormwater runoff) has been eliminated.

BOD₅ Analyses Results µg/L						
Year	2004	2005	2006	2007	2008	2009
Result	4,400	<5000	6,240	<5000	<5000	20,300

Alternatively, if the final Permit contains this parameter in the NPDES Permit, **PREPA requests that the limit be expressed as a Daily Maximum at the same level as the current Permit (45.0 mg/L)** because the sampling frequency is “annually” and so there will be only one data point a year. Because one sample had a recorded BOD₅ of 20.3 mg/L and because the BOD₅ measure method makes the resulting levels variable (even for homogeneous waste streams) setting the limit at 30 mg/L is not necessary to meet PRWQS in Jobos bay. Finally, if the requirement is included in the final Permit, **PREPA requests that the Permit indicate that monitoring for BOD₅ only has to be done until completion of the closure of the underground injection systems** in accordance with the EQB approved plans.

EPA Response II.7.a.

EPA has revised the monitoring frequency to annually, consistent with the final water quality certificate.

b. Color:

i. **Monitoring Location --** This requirement was included in PREPA’s comments on the ITIWQCDAMZ. The “β” note requires two color monitoring points: effluent and receiving water body. Consistent with the current NPDES Permit, **PREPA requests that the monitoring point be limited to the effluent.** Because the Outfall 004 point is located near Jobos Bay-Mangrove Coast, it may be influenced by other elements for the color monitoring in the “receiving water” and will not be useful in determining the the APPC’s contributions to color.

- ii. **Monitoring Frequency** -- This requirement was included in PREPA’s comments on the TIWQCDAMZ. PREPA requests that the following note be added to this parameter: “Monthly monitoring for this parameter is required for 1 year from EDP. After this time period, permittee may request that further sampling and analyses for this parameter may, based upon the submitted results, either be eliminated or its frequency reduced.

EPA Response II.7.b.

EPA has included the permit conditions as included in the final water quality certificate issued by EQB, which requires a monitoring study to determine background levels of color in the receiving water.

- c. **Cyanide, Free:** This requirement was commented for the ITIWQCDAMZ. PREPA requests that this parameter be eliminated from Table A-4 because its records for this parameter over the past five (5) years (2009, 2008, 2007, 2006 and 2005) (summarized in the Table below) showed not only full compliance with the current NPDES Permit limit (1.0 ug/L), but also that free cyanide has not been detected during 20 quarter monitorings. In addition, the current Total Cyanide analysis includes the Species from Strong Metal Complexes, Weak to Moderately Strong Metal Complexes (Available Species) and Free Species.

Year	Jan.	Feb.	Mar.	Apr.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<1.0	<1.0	<1.0	<1.0
2008	<1.0	<1.0	<1.0	<1.0
2007	<1.0	<1.0	<1.0	<1.0
2006	<1.0	<1.0	<1.0	<1.0
2005	<1.0	<1.0	<1.0	<1.0

Year	May	Jun.	Jul.	Aug.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<1.0	<1.0	<1.0	<1.0
2008	<1.0	<1.0	<1.0	<1.0
2007	<1.0	<1.0	<1.0	<1.0
2006	<1.0	<1.0	<1.0	<1.0
2005	<1.0	<1.0	<1.0	<1.0

Year	Sept.	Oct.	Nov.	Dec.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<1.0	<1.0	<1.0	<1.0
2008	<1.0	<1.0	<1.0	<1.0
2007	<1.0	<1.0	<1.0	<1.0
2006	<1.0	<1.0	<1.0	<1.0
2005	<1.0	<1.0	<1.0	<1.0

Alternatively, **if Free Cyanide is retained on Table A-4 in the NPDES Permit, PREPA requests that the following (Bold italicized) clause be changed to note 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 the permittee may request, based upon the submitted results, that further sampling and analyses for this parameter be eliminated.** The monitoring program shall commence...[back to the proposed note]

EPA Response II.7.c.

EQB has eliminated the free cyanide limitation from the final water quality certificate. In light of this decision, EPA has considered this request and the monitoring data, and has removed the limit for free cyanide.

d. **Dissolved Oxygen (DO):** This requirement was commented for the ITIWQCDAMZ.

PREPA requests that the final Permit require that the monitoring frequency for DO in this Outfall be monthly instead of daily based upon the Outfall 004 compliance history. The current permit frequency for this parameter is weekly. It is contradictory to typical practice for a parameter with which a permittee has been in consistent compliance to have its monitoring frequency increased instead of decreased. Also, PREPA plans to install aeration pumps upstream of Outfall 004 in order to comply with the DO water quality standard applicable to SB classification for the receiving water body. Under the recent PRWQSR, the Jobos Bay classification was changed from SC to SB, thus changing the applicable water quality standard from 5 mg/L to 4 mg/L.

EPA Response II.7.d.

EPA has revised the monitoring frequency to weekly, as required by the EQB water quality certificate.

e. **Oil and Grease:** This requirement was included in PREPA's comments on the ITIWQCDAMZ. PREPA requests that O&G be eliminated from Table A-4 because, as shown in the summary below) our records for this parameter during the past five (5) years (2009, 2008, 2007, 2006 and 2005) showed full compliance with the current NPDES Permit limit (20,000 ug/L (20 mg/L) max. and 15,000 ug/L (15 mg/L) ave.). In fact, no O&G has been measured in Outfall 004 during this five year period.

Year	Jan.	Feb.	Mar.	Apr.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

Year	May	Jun.	Jul.	Aug.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

Year	Sept.	Oct.	Nov.	Dec.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<5000	<5000	<5000	<5000
2008	<5000	<5000	<5000	<5000
2007	<5000	<5000	<5000	<5000
2006	<5000	<5000	<5000	<5000
2005	<5000	<5000	<5000	<5000

The draft permit has two (2) different requirements for this parameter. One requirement, that the “waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases” has a monthly monitoring frequency. It is PREPA’s intention on fulfilling this requirement, if it is in the final permit, through a visual inspection of the outfall.

The other requirement includes numerical limits of 15.0 and 10.0 mg/L, in the Daily and Average Maximums, respectively, with monitoring frequency twice per month. Based on the 5 years worth of monitoring data which is summarized above, which demonstrates that PREPA does not add O&G, and consistent with our comments to the ITIWQCDAMZ, PREPA requests the elimination of the Oil and Grease parameter from Table A-4.

Alternatively, if EPA decides it must keep O&G related limits for this outfall, **PREPA requests that the narrative requirement be deleted and that the final Permit just retain the current permit’s Daily Maximum and Daily Average numerical limits of 20.0 and 15.0 mg/L subject to the following monitoring condition:**

Monthly monitoring for this parameter is required for 1 year from EPD. After this time, permittee may request, based upon the submitted results, that further sampling and analyses for this parameter either be eliminated or its frequency reduced to quarterly.

EPA Response II.7.e.

EPA has eliminated the narrative limitation for oil and grease from all outfalls, as this limitation has not been included in the final water quality certificate. EQB included a monthly monitoring requirement for oil and grease, as a study to determine whether limitations were necessary. EPA had included technology based limitations, based on Region 2 policy and federal effluent limitation guidelines. These numeric limitations will be retained in place of the EQB monitoring requirement. EPA has reduced the monitoring frequency from twice per month to monthly.

- f. **Total Suspended Solids (TSS):** This requirement was included in PREPA's comments on the ITIWQCDAMZ.

The draft permit lists TSS on Table A-4 but it does not include a TSS limit, required monitoring frequency and/or sample type. PREPA agrees that there is no reason for any TSS requirements for this Outfall. As summarized below, the 004 TSS monitoring records during the past five (5) years (2009, 2008, 2007, 2006 and 2005) showed full compliance with the current NPDES Permit maximum limit (100,000 ug/L/ 100 mg/L max.) with TSS even being measured only 35% times (21 out of 60) quarterly measurements Further, if a TSS limit is included in the final NPDES permit, then the limit should be the current daily maximum limit of 100 mg/L.

EPA Response II.7.f.

EPA has retained the TSS limitation from the current permit, with a grab sample type and monthly monitoring frequency.

- g. **Pentachlorophenol:** This requirement was commented for the ITIWQCDAMZ.

As discussed in past correspondence with EPA and EQB (such as PREPA's Potential to Exceed Analysis of April 1997) the reason some of the historic data for this parameter was deemed to have a "potential to exceed" the water quality standard was just because the laboratory used a detection limit higher than the applicable July 1990 Water Quality Standard Regulation. The proposed permit contains a "monitoring only" requirement for this parameter in Table A-4. PREPA is willing to monitor this parameter according to the Draft NPDES (implement monthly monitoring program after EPA approves the QAPP). However, it requests that note "Φ" be modified to include the following new clause (in bold italics):

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, the permittee may request, based upon the submitted results that further sampling and analyses for this parameter may be eliminated. The monitoring program shall commence...[back to text in the draft permit]

PREPA proposes the elimination of this parameter after one (1) year of monitoring because it the one year of monitoring using a 40 CFR part 136 approved method with a detection level lower than the water quality standard, will provide sufficient data to allow a factual determinations was to

whether there is a “potential to exceed” the water quality standard. PREPA is confident that the data will confirm that this Outfall does not add any material quantities of pentachlorophenol to its discharge.

EPA Response II.7.g.

This request is denied. EPA has included the requirements for pentachlorophenol as included in the final water quality certificate issued by EQB.

h. Silver: In response to the June 2007 ITIWQC, PREPA commented (in August 2007, which was within the provided commenting period) the following: “PREPA requests to eliminate or reduce the sampling frequency for this parameter based upon the attached results (five year period).” PREQB granted PREPA’s petition in the February 2010 the ITIWQCDAMZ updated Draft WQC, by deleting this parameter. Therefore, PREPA respectfully requests the elimination of this parameter.

EPA Response II.7.h.

EPA has retained this limitation from the previous permit consistent with EPA Region 2’s Antibacksliding Policy.

i. Suspended, Colloidal or Settleable Solids: PREPA understands that the symbol #, which is meant to reference the footnote which states “The permittee shall perform the tests for Settleable Solids.”, was inadvertently not included. PREPA requests that this footnote reference be included in the final Permit.

EPA Response II.7.i.

EPA has included this footnote.

j. Lead and Mercury: These parameters were not included In the February 2010 ITIWQCDAMZ. Therefore, PREPA respectfully requests the elimination of these parameters.

EPA Response II.7.j.

EPA has retained the limitations for lead and mercury from the previous permit consistent with EPA Region 2’s Antibacksliding Policy.

k. Zinc and Turbidity: This Draft NPDES Permit established a maximum numerical limit for these parameters of 50.00 µg/L and 50 NTU, respectively. The 2010 PRWQSR establishes as maximum numerical limits 85.62 µg/L and 10 NTU, respectively. Among the purposes of this Regulation are the prescription of the water quality standards required to sustain the designated uses and to prescribe other measures necessary for achieving and maintaining the quality of the waters of Puerto Rico. Therefore, PREPA request to keep the numerical limits of the state regulation.

EPA Response II.7.k.

EPA has retained the limitations for zinc from the previous permit consistent with EPA Region 2’s Antibacksliding Policy. EPA has changed the limit for turbidity to be consistent with the final water quality certificate.

I. Discharge Description: “Contributions of wastewaters from Combined Cycle Equipment Hydrostatic Tests” should be added to this description. See the related comment on the inclusion of Special Condition 27 (In Part III below).

EPA Response II.7.I.

EPA has modified the discharge description for Table A-4a as requested by the applicant.

8. Table A-4a (Internal Wastestreams):

a. For the reasons discussed in Part II, Comment 3 (a) above, **PREPA requests that the monitoring requirement for the 126 Priority Pollutants parameters be deleted from Table A-4a.**

Alternatively, if the monitoring requirement for 126 Priority Pollutants parameters is not deleted, PREPA requests to change the following footnote:

** The first monitoring shall be performed at EDP + 6 months after that. For all Priority Pollutants which are not detected during this monitoring event, no further sampling and analyses will be required for the duration of this permit.

Also, PREPA requests that the Sample Type be changed to “grab” instead of composite.

EPA Response II.8.a.

Based on the documentation provided by PREPA, EPA has removed the priority pollutant scan requirements from Table A-4a.

b. Chromium and Zinc: PREPA requests that these parameters not be included for IWS 004a due to the reasons explained section II.3 (a) above.

EPA Response II.8.b.

This request is denied. The effluent limitations for chromium and zinc were included based on federal effluent limitation guidelines.

9. Table A-5 (Outfall 005):

a. Oil and Grease (O&G): This requirement was included in PREPA’s comments on the ITIWQCDAMZ.

The draft permit has two (2) different requirements for this parameter. One requirement, that the “waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases” has a monthly monitoring frequency. It is PREPA’s intention on fulfilling this requirement, if it is in the final permit, through a visual inspection of the outfall.

The other requirement includes a daily maximum limit of 15.0 mg/L with monitoring frequency set at “WFO” (when flow occurs).

PREPA requests the elimination of the Oil and Grease parameter from Table A-5.

Alternatively, if EPA decides it must keep O&G related limits for this outfall, PREPA requests that the narrative requirement be deleted and that the final Permit just retain the current permit's Daily Maximum 20.0 mg/L. While the Fact Sheet cites a 1991 EPA guidance document as the basis for the more restrictive proposed 15 mg/L limit, because that Guidance pre-dates the last two APCC NPDES permits, those permits should be the basis for the O&G limit for this Outfall.

In addition, this limit and monitoring requirement should be subject to the following monitoring condition:

Monthly monitoring for this parameter is required for 1 year from EPD. After this time, permittee may request, based upon the submitted results, that further sampling and analyses for this parameter either be eliminated or its frequency reduced to quarterly.

EPA Response II.9.a.

EPA has removed the narrative limitation for oil and grease from all outfalls, as this limitation has not been included in the final water quality certificate. EQB included a monthly monitoring requirement for oil and grease, as a study to determine whether limitations were necessary. EPA had included technology based limitations, based on Region 2 policy and federal effluent limitation guidelines. These numeric limitations will be retained in place of the EQB monitoring requirement. EPA has reduced the monitoring frequency from twice per month to monthly.

- b. pH:** This requirement was included in PREPA's comments on the ITIWQCDAMZ. The stormwater drainage shed for this Outfall does not include storm water runoff from areas where it might contact generating units. Therefore, APCC related "processes" will not change the pH of the discharged runoff. The storm water runoff pH may be out of the specified range due solely to ambient conditions only. Hence, PREPA requests, consistent with the current NPDES Permit's requirements that monitoring and numerical limits for pH parameter be deleted from the NPDES Permit.

EPA Response II.9.b.

EPA has included the permit conditions for pH as included in the final water quality certificate issued by EQB.

- c. Suspended, Colloidal or Settleable Solids:** This requirement was included in PREPA's comments on the ITIWQCDAMZ. This Draft NPDES Permit establishes monitoring frequency and sample type for this parameter. All wastewater sources (storm water runoff) which eventually discharges through this Outfall first pass through the Oil-Water Separator (OWS). Moreover, among the purposes of the OWS's design is to help settle the solids before the wastewater reaches the Outfall. Therefore, PREPA believes that the monitoring requirement for this parameter is unnecessary and requests that, consistent with the current NPDES Permit's requirements, it be deleted from the NPDES Permit.

EPA Response II.9.c.

EPA has included the permit conditions as included in the final water quality certificate issued by EQB.

- d. Temperature:** This requirement was included in PREPA's comments on the ITIWQCDAMZ. The APPC does not add any heat to this storm water runoff and the drainage shed for this Outfall does not include storm water runoff from any area where the stormwater could come into contact with generating units. Also Outfall 005 has demonstrated historical compliance in this parameter. Therefore, PREPA requests that the monitoring and numerical limit for this parameter be deleted from the NPDES Permit.

EPA Response II.9.d.

EPA has included the permit conditions as included in the final water quality certificate issued by EQB.

- e. Discharge Description:** This discharge consists only of Stormwater runoff (consistent with the Special Condition 2) from the one portion of the Complex's south-east. The description of this Outfall should exclude contributions of wastewaters from Combined Cycle Plant service water cooling tower blowdown, Combined Cycle Plant miscellaneous use water, sedimentation basin 2 effluent (stormwater from the fuel tanks dikes) and groundwater.

EPA Response II.9.e.

The discharge description for Table A-5 has been modified.

- f. COD and TSS:** Neither the 2007 ITIWQC nor the 2010 ITIWQCDAMZ included these parameters. Also, the current NPDES Permit does not require monitoring for these parameters. PREPA believes that no monitoring of this stormwater only outfall for these two parameters is necessary because this stormwater does not pass through processrelated areas and all wastewater sources (storm water runoff) from the tributary drainage shed pass through the Oil-Water Separator before being discharged.

Moreover, among the purposes of the OWS's design is to help settle the solids before the wastewaters is discharged through the Outfall. Therefore, PREPA requests the elimination of these parameters (monitoring and numerical limit) from the NPDES Permit, in accordance with the current NPDES Permit's requirements.

EPA Response II.9.f.

The request is denied. These limitations are established in accordance with the Region II Revised Guidance for Cooling Water and Storm Water Runoff, dated September 5, 1991.

10. Table A-6 (At the edge of the Mixing Zone):

Temperature: Please refer to Comment 7 in Part III below.

11. Table A-7 (Background Sampling Station):

Please refer to Comment 7 in Part III below.

PART III – SPECIFIC COMMENTS TO SPECIAL CONDITIONS

The proposed Special Conditions in the draft Permit are taken directly from the draft WQC. The comments below are consistent with, but often somewhat refined and expanded from the comments PREPA submitted to EQB (with a copy to EPA) on April 17, 2010. The comments below should be considered by both EQB as it continues to evaluate PREPA's pending request for changes to the Draft WQC and by EPA as it responds to these comments.

1. Special Condition 1 – This requirement was included in PREPA's comments on the ITIWQCDAMZ which proposes to establish a 1.65 MGD Daily Maximum flow discharge on Outfall 003. In the renewal application form PREPA requested 10.0 MGD. The following table outline discharged flows during the past five years:

Years	2005	2006	2007	2008	2009
Months	(MGD)	(MGD)	(MGD)	(MGD)	(MGD)
Jan.	3.95	4.81	4.99	4.84	4.01
Feb.	4.58	3.84	4.79	4.91	5.52
Mar.	3.57	3.66	5.6	5.19	5.22
Apr.	3.21	4.4	4.49	5.06	5.18
May	6.2	6.83	5.46	4.88	3.87
Jun.	5.4	4.79	4.13	5.4	3.92
Jul.	3.08	5.04	5.47	5.61	5.14
Agu.	4.7	6.91	4.95	5.62	4.02
Sept.	3.47	4.9	4.5	5.67	5.64
Oct.	9.96	6.06	5.69	4.46	5.5
Nov.	3.6	3.47	4.73	4.4	5.56
Dec.	4.09	4.75	4.71	5.43	5.6
Ave.	3.95	4.81	4.99	4.84	4.01
Max.	9.96	6.91	5.69	5.67	5.64
Min.	3.08	3.47	4.13	4.4	3.87

The maximum recorded discharge flow over the last five years was 9.96 MGD, barely below the 10 MGD which PREPA has requested. In addition, PREPA plans to change the backwash pumps for the Intake Traveling Screens which will increase the flow discharged. This means that during the weekends PREPA will have to store treated water rather than discharge it. Because of personnel constraints, the APPC will only be able to have the operators on hand to coordinate this discharge during business days, increasing daily flows during those days. Therefore, PREPA requests that the final Permit include the 10 MGD (dry weather) flow limit which PREPA requested.

2. Special Condition 4 This requirement was included in PREPA's comments on the ITIWQCDAMZ. Under this requirement PREPA has to 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). PREPA has preliminarily found two companies that claim to have a modified method for free Cyanide Analyses. Based on the information currently available to PREPA,

apparently neither of these Methods has been yet approved by EPA for NPDES required monitoring. As discussed in several places in Section II of these comments above, PREPA is requesting that Free Cyanide related monitoring requirements be eliminated. In addition to the reasons discussed in Section II above, the lack NPDES related approval of the methods found to date underscores the wisdom of removing both the Free Cyanide monitoring requirement and this Special Condition.

3. Special Condition 7 This requirement was included in PREPA's comments on the ITIWQCDAMZ. It requires the filing of a semiannual report on the disposal of APPC wastewater treatment related solids waste. The disposal methods used by the APPC for disposal of these residues do not change often and in most respects are the same as when operation of the APPC wastewater treatment system first went on line. Because of the lack of change, the requirement for semiannual reports is unnecessary and burdensome.

Therefore, PREPA requests that the second and third sentences of condition (a) of this Special Condition be changed to:

... Within ninety (90) days of EDP a report shall be submitted to EQB and EPA notifying the disposal method for the solids waste (sludge, screening and grit) generated due to the operation of the treatment system. If any change of the method or methods used to dispose the solid wastes generated by the wastewater treatment system occurs then permittee must submit an updated notice of this change to EQB and EPA within 90 days of when the change occurred.

4. Special Condition 14 This requirement was included in PREPA's comments on the ITIWQCDAMZ. The calibration requirement at the end of condition does not apply to how rain fall amounts are measured at the APPC. The rain gauge installed at the Aguirre Power Plant Complex is a traditional rain gauge device (cylindrical graduated meter) without electronic or mechanical components. If the rain gauge is damaged, leaking or otherwise not operating properly, it is simply replaced. Therefore, PREPA requests that this requirement be deleted.

5. Special Condition 16 b This requirement was included in PREPA's comments on the ITIWQCDAMZ. It requests periodic review of the BMPP at least each five (5) years. PREPA accepts the condition. It does note however that on May 2007, PREPA submitted its most recent BMPP reviewed (Revision #4) for EQB approval. As of today, PREPA has not received comments or approval of those revisions.

6. Special Condition 20 This requirement was included in PREPA's comments on the ITIWQCDAMZ. The condition requires, periodic calibration, proper maintenance and recordkeeping in the flow measuring devices for Outfalls 001, 002, 003, 004 and 005. Outfalls 001 and 005 flows are estimated by Pumps Log Records and TR-55 Storm Water Run-off Urban Calculation procedures approved by EQB, respectively. PREPA seeks confirmation that this Special Condition does not apply to Outfalls 001 and 005 because these Outfalls do not have a "flow measuring device". Flow Measuring devices are installed for Outfalls 002, 003 and 004 only.

7. Special Condition 24(a – g) and (m – p) Thermal limits and mixing zone. These requirements were discussed in PREPA's comments on the ITIWQCDAMZ.

- a. Background - While PREPA is not resubmitting the entire 2005 two volume APPC 316 Demonstration Study with these comments, as EPA already has copies of that Report, it does expect that this Report will be included in the record for this Permit renewal³. Below is a brief listing of some of the information in the APPC 316 Demonstration Study which supports the granting of alternate thermal limitations, including an alternate mixing zone to that described by EQB in the Draft WQC.
- Conservatively, even under maximum temperature rise conditions, the size of the surficial thermal plume which is greater than 3 °C above ambient water temperature is only 0.11 % of the total volume of Jobos Bay and only ~ 0.26% of the portion of Jobos Bay which is within smaller areas bounded by the Cayos. None of the bottom habitat area is exposed to a temperature increase of more than 3 °C. (See Appendix 1 - copies of Figures 5-27 and 28 and Table 5-2 of the APPC 316 Demonstration Study).
 - At any time, only approximately 5.3% (or less) of the total volume of Jobos Bay water is exposed to any increase in temperature related to the discharge of cooling water, and only ~ 0.11 % of the total volume is exposed to a temperature increase of more than 3 °C. See Appendix 1 (copies of Figures 5-27 and 28) and Table 5-2 of the APPC 316 Demonstration Study to these comments).
 - The Aguirre Study area (as described in the APPC 316 Demonstration Study) qualifies as a low impact area for zooplankton and meroplankton, habitat formers and shellfish/macroinvertebrates. (See §5.2.4.7 of the APPC 316 Demonstration Study.)
 - The Aguirre Study area qualifies as a low impact area for commercial and sport fish and all other fish except anchovies and gobies. The high larval abundance found throughout the study area indicates that APPC discharge results in low impact to the fish populations of anchovies and gobies. (See §5.2.4.7 of the APPC 316 Demonstration Study.)
 - The exceptional benthic community of Jobos Bay is not impacted by the APPC thermal discharge. (See §5.2.4.7 of the APPC 316 Demonstration Study.)³
 - The ichthyoplankton data suggests that Jobos Bay is a spawning and nursery area for anchovies and gobies. However, because the thermal plume impacts less than 0.26 percent of the whole study area, or 0.11 percent of the Bay volume, any effects of the thermal plume on anchovy and goby spawning areas are similarly small. (See §5.2.4.7 of the APPC 316 Demonstration Study.)
 - The APPC receiving waters, and the existing and continued operation of the thermal discharge, both qualify as low impact according to EPA Guidance Manuals (USEPA 1977a and 1977b). Therefore, the thermal effluent from the operation of the APPC has not caused, nor is expected to cause, any appreciable harm to the balanced indigenous community. Because of this, the thermal standards under Puerto Rico water quality regulations are more stringent than necessary to protect the balanced, indigenous

³ If, for some reason, EPA cannot easily locate its copies, PREPA can submit an electronic copy of the Report.

population of shellfish, fish and wildlife in and on Jobos Bay. (See §5.2.4.7 of the APPC 316 Demonstration Study.)

- The APPC does not directly or indirectly affect any threatened or endangered species or Critical Coast Wildlife areas (APPC 316 Demonstration Study, § 5.2.4.6).
- Section 3.3.1.2 of the APPC 316 Demonstration Study describes historical ambient water temperature data and Table 3.2 of the Study includes ambient water temperature measurements for the study period, with average values ranging between 28.3 °C (83 °F) and 30 °C (86 °F) and peaks during September of 32 °C (89.7 °F). In addition, as documented in data included in the APPC DMR reports, ambient water temperatures in the order of 32.2 °C (90 °F) have been measured.
- Hotter Months Intake Temperature Data (°F)

Hotter Months Intake Temperature Data (°F)				
Year	July	August	September	October
2004	85	87	86	88
2005	87	89	90	87
2006	86	86	88	87
2007	86	86	87	87
2008	86	87	88	87
2009	86	87	87	87

- The APPC steam condenser design temperature rise is 18 °F. If the maximum condenser temperature rise and maximum ambient water temperature coincide, the theoretical maximum discharge temperature is 42.2 °C (108 °F). The highest discharge temperature measured during the period April 2003 through April 2004 (which was the period used for the thermal modeling presented in the APPC 316 Demonstration Study) was 40.6 °C (105.1 °F).
- b. Main Thermal Issue -** At times the ambient water temperature is essentially at, and perhaps even above, the ambient water quality standard. During times of elevated ambient water temperatures, strict application of the Puerto Rico Water Quality Standard of 90 °F would likely force APPC to significantly curtail its power generation and, perhaps, shut down some or all of its units, because it would not be able to meet the 90 °F standard at the edge of the very small mixing zone proposed in the Draft WQC.

Currently the APPC generates more than 25% of the electricity supplied by PREPA. Forcing it to significantly curtail operations during an extended period of very hot weather (the only time that the ambient water temperature is likely to be in the upper 80s (°F)) is totally unnecessary and potentially significantly harmful to the well being of Puerto Rico’s citizen and its current economic recovery. This is because the APPC 316 Demonstration Study clearly shows that the APPC thermal discharges currently “assure the projection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on” Jobos Bay. It is clear that without either a change to the temperature conditions in the final WQC or the granting of

alternative thermal requirements by EPA pursuant to CWA § 316(a), PREPA will not be able to achieve consistent compliance with the proposed thermal limits unless it reduces or eliminates generating electricity at the complex during period of high ambient temperatures. As already discussed above, because the discharge qualifies for alternate thermal discharge requirements under CWA § 316(a), the draft WQC, or at least the final NPDES Permit must be significantly changed before the Permit is finalized.

c. An Appropriately sized and shaped Mixing Zone Is Needed -The EQB Water Quality Regulation 1305 provides for the authorization of a Mixing Zone, which is defined as a “Tridimensional space in a receiving water body where the discharge is diluted with surrounding waters, which has been defined according to Rule 1305 of this Regulation. Applicable water quality standards, the CCC and the CMC, are met at the boundary of the mixing zone”. Thus, there is no need for a permit requirement for temperature compliance at the end of the submerged pipe or outfall because the Puerto Rico Water Quality Standards set the compliance point for applicable water quality standards as being at the boundaries of the Mixing Zone. As discussed further below, PREPA is open to having a reasonably sized and located mixing zone be a part of this alternate thermal limit. However, as discussed below, the proposed mixing zone established in the Draft WQC is both arbitrary and unreasonable.

Special Condition 24 (a) specifies the geographic coordinates of the IMZ proposed by EQB, and is taken directly from the Draft WQC. Special Conditions 24 (b – g) and (m – p) specify how the mixing zone is to be validated and monitored. PREPA is requesting that these conditions be replaced by a series of alternate thermal requirements, taken directly from the APPC 316 Demonstration Study.

With respect to the mixing zone boundaries, PREPA performed preliminary field measurements to identify the location and size of the Draft WQC’s proposed IMZ. As a part of this exercise it made distances calculations based on the proposed geographic coordinates. These are included in Appendix 3. Also, PREPA reviewed the APPC 316 Demonstration Study. The draft WQC’s proposed interim Mixing Zone is fixed in location, a totally arbitrary, unnatural configuration. As shown in Figures 5-11 through 5- 18 in the APPC 316 Demonstration Study, both the observed and modeled .3 °C and 1 °C thermal plume locations and boundaries are variable, with the shape and location being largely dependent on both tide and wind conditions (see APPC 316 Demonstration Study at 5.2.3.1).

Further, based on PREPA’s preliminary field measurements (see Appendix 3), the proposed IMZ has an estimated area of approximately 2,779 m². In contrast, Table 5-2 of the APPC 316 Demonstration Study estimates the size of the “probabilistic plume envelope” for the .3 °C (above ambient) thermal plume to be approximately 62,658 m². As is expected and as can be seen in a comparison of Figures 5-27 and 5-33 from the APPC 316 Demonstration Study (copies of which are included in Appendix 1 to these comments), the .3 °C probabilistic envelope plume is the same shape but smaller than the maximum 90 °F plume when the ambient water temperature is at the warm weather average temperature of 30.42 °C (86.75 °F). Clearly, the IMZ proposed in the Draft WQC is significantly smaller (by more than 95%) than what is needed for the current discharge to be deemed compliant with a requirement to consistently achieve 90 °F at the boundary of the mixing zone. The Table below compares the

surface mixing zone delineated in the draft WQC with those projected by the thermal modeling presented in the APPC 316 Demonstration Study.⁴

**Comparison of Size and Volumes of Draft WQC Imposed Mixing Zones
with Those Included in the APPC 316 Demonstration Study**

Source	Endpoint	Area (m ²)	Volume (m ³)	Note
Draft WQC	90 °F as enforceable permit limit	2,783	29,949 (0.03%)	1, 1a, 3
Thermal Model (TM) Table 5-2 "EPA 316(a)"	Δ3 °C maximum	62,658	86,512 (0.11%)	2,3
TM "World Bank"	Δ3 °C, 95 %	22, 854	38,402 (0.041%)	3,4

Notes to Table:

1. See Draft NPDES Special Condition 24.
- 1a. Based on an assumed average depth of 10.76 meters.
2. See 316 APPC Demonstration Report at §5.2.3.1. This is the maximum Δ3 °C temperature rise under the TM assumed worst case conditions. See Appendix 1, Figures 5–27 and 5-28.
3. The percentage included in the Volume column represents the percentage of the total volume of Jobos Bay, approximately 75,983,000 m³.
4. Maximum width along the plume of 320 m and maximum length across the Δ3 °C plume of 100 m. See Figures 5-31 and 5-32 in Appendix 1.

As shown by the thermal surveys and the thermal modeling presented in the APPC 316 Demonstration Study, the imposition of a rectangular mixing zone on the APPC discharge is unreasonable and would be an abuse of EPA’s discretion. Instead, if the final permit must contain absolute fixed mixing zone boundary points, then the boundaries should be those depicted by the 90 °F contour on Figures 5-33 and 5-34 of the APPC 316 Demonstration Study (included in Appendix 1). These boundaries can be imposed through the CWA §316(a) Determination and then as part of EPA’s establishment of alternate thermal limits in the final NPDES permit. PREPA would be happy to have its consultants provide a graphic accompanied by a Table with latitudes and longitudes at points depicted on the graphic which could be incorporated into the 316(a) determination and, ultimately into the final permit.

⁴ The probabilistic plume envelope is not the location of the plume at any single time, but rather the area within which the plume is likely to be found a high percentage of the time (in the Aguirre modeling, close to 100 % of the time) driven largely by tide and wind conditions. The .3°C thermal plume delineated in the Aguirre modeling was based on the observed worst case conditions during the 1 year study period (September 2003)). It is discussed in § 5.2.3 of the APPC 316 Demonstration Study.

d. Requested Alternate Thermal Limits

Based on the above, **PREPA requests that the CWA §316(a) Determination's establishment of alternate thermal limits and the final NPDES Permit for the 001 discharge contain the following elements** (and that draft Special Conditions 24 (a-g) and (m – p) be removed from the NPDES Permit before it is finalized):

1. An end of pipe maximum “Delta T” of 18 °F. This will be the alternate thermal limit replacing the 38.5 °C (101.30 °F) limit which is on page 4 of 55 of the Draft NPDES and Special Condition 24(e) of the Draft WQC. Compliance monitoring will continue to be once a day, by a grab sample (i.e. by an instantaneous measurement)

Basis – This places an absolute end of pipe maximum, which is easily measured, on the APPC thermal discharge. This limit would be equivalent to the current 41.1 °C (106 °F) limit, but more restrictive in that when the intake water temperature is less than 31.1 °C (88 °F), then the discharge temperature also would have to be less than 41.1 °C (106 °F). Because of this, such a limit would not represent backsliding. This also will be consistent with the (APPC 316 Demonstration Study), which concluded that the cooling water-related intake and discharge areas (Outfall 001A) qualified as a “Low Impact” area under EPA’s CWA § 316 guidance and with the Fact Sheet (Page 3, Section “VII – OCEAN DISCHARGE CRITERIA”) statement of:

Based on the results of the demonstration submitted by PREPA and information available from other studies, EPA had determined that sufficient information is available to establish that the proposed discharge will not cause unreasonable degradation to the marine environment.

2. An irregularly shaped mixing zone whose boundaries are defined by a Figure and Table (to be provided by PREPA if this comment is accepted) which corresponds to Figure 5-33 of the APPC 316 Demonstration Study. This figure will also designate at least 4 boundary-related sampling points and one or more background water temperature sampling points.
Basis - See above and section 5.2.3 and Appendix B of the APPC 316 Demonstration Study.

The current Draft WQC and Draft NPDES Special Condition 24c requires the use of mixing zone-related thermal background monitoring points located at 100 meters of the current point 1 or 2 (depending on tide behavior at the time of the monitoring) of the Draft WQC’s IMZ coordinates listed in Special Condition 24(c). Based on the preliminary field measurement done by PREPA, a background monitoring station located at 100 meters from the geographic coordinates of the Draft WQC IMZ’s “point 1” may be located in the designated navigation channel. If so, having to, periodically locate it and/or to install permanent monitoring equipment may interfere with the existing navigation channel. PREPA is requesting that suitable background sampling locations be evaluated and established during the mixing zone validation study.

3. Compliance with a 32.2°C (90 °F) maximum limit beyond the mixing zone boundaries
Basis - See above and section 5.2.3 and Appendix B of the APPC 316 Demonstration Study.

4. The mixing zone, including its boundaries, shall be validated during a one year monitoring program. A Plan of Study, including a QA/QC Plan, for this program is to be submitted to EPA (with a copy provided to EQB) by EDP + 180 days. The Plan of Study will identify the proposed sampling program based upon either the document listed in draft Special Condition 24(d) or another reasonable method. The monitoring program shall be initiated within 90 days of EPA's approval of the program and will generally be consistent with draft Special Conditions 24 (f) and (g). A report on the mixing zone validation study, which may include recommendations to adjust the boundaries and sampling points of the mixing zone, is to be submitted within 180 days of the completion of the monitoring program's field/work. This report will also document the equipment used to situate the mixing zone boundaries and will include the information listed in Special Condition 24(d).

Basis – This requirement is intended to be consistent with Draft WQC and NPDES Permit Special Conditions 24(d, f g and m – p). However the details of the study are to be proposed by the permittee with EPA to review and approve them before the study is initiated.

5. The established boundaries of the edge of the mixing zone will be suspended whenever the ambient water at the intake is above 31.1°C (88 °F), however the 18 °F .T limit at end of pipe discharge will still apply during these events. The dates and number of times this provision was triggered each month is to be reported as a DMR addendum. Submittal of this addendum is not required for months that this provision is not triggered.

Basis – As shown in the thermal studies and thermal modeling discussed in section 5.2.3 of the APPC 316 Demonstration Study, the ambient water temperature does periodically rise above 31.1 °C (88 °F) albeit for short periods (typically for several hours or less in the late afternoon during the warmer months).

8. Special Condition 25 was addressed in PREPA's comments on the ITIWQCDAMZ. The Special Condition requires quarterly monitoring for acute and chronic toxicity (using the Whole Effluent Toxicity or WET test) on wastewater discharged through Outfalls 001, 002, 003 and 004. 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. During the current NPDES Permit, acute toxicity tests were performed quarterly for one year for all Outfalls.

After that, the tests were eliminated due to the favorable (i.e. lack of apparent toxicity) results. In addition, during the pilot tests of the use of NALCO Chemical Cooling Tower Products and the use of Foam for Tanks Fire System, PREPA performed tests for acute toxicity. Also, for the Mixing Zone Application, PREPA performed acute and chronic toxicity tests for Outfall 001. The WET test results for all four (4) different events were favorable (no indications that the APPC discharges were toxic) which should be enough to prove, when combined with the fact that the APPC's operations have not changed significantly since the WET testing was done, that the discharges through these four APPC Outfalls will not cause or contribute to aquatic toxicity. Therefore, **PREPA requests that this sampling and analyses requirement be reduced to quarterly for one year and then eliminated unless these tests provide indications of chronic or acute toxicity.**

Item e of this Special Condition establishes 36 hours to initiate the tests after collection of the samples. **PREPA request that a note be added to the permit that states:**

Because there are no laboratories in Puerto Rico that do acute and chronic WET tests, if during chronic WET testing, a replenishment sample for chronic testing fails to arrive at the selected testing laboratory, the laboratory may use the prior sample that had arrived on time and which was used to initiate the test as long as that sample has been kept refrigerated with access to it controlled through a signed chain of custody form.

9. Special Condition 26 stipulates that any change to the PRWQSR must be complied with immediately after the effective date of the change unless the Permittee requests and obtains a Compliance Plan. This requirement is contrary to EPA's NPDES regulations (40 CFR §124.55(b)) which state:

If there is a change in the State law or regulation upon which a certification is based, or if a court of competent jurisdiction or appropriate State board or agency stays, vacates, or remands a certification, a State which has issued a certification under §124.53 may issue a modified certification or notice of waiver and forward it to EPA. If the modified certification is received before final agency action on the permit, the permit shall be consistent with the more stringent conditions which are based upon State law identified in such certification. If the certification or notice of waiver is received after final agency action on the permit, the Regional Administrator may modify the permit on request of the permittee only to the extent necessary to delete any conditions based on a condition in a certification invalidated by a court of competent jurisdiction or by an appropriate State board or agency.

Therefore, this Special Condition must be modified along the lines of:

In the event of an amendment of the Puerto Rico Water Quality Standards Regulation, this Permit may be reopened if the Puerto Rico Environmental Quality Board issues a final amended Water Quality Certificate reflecting the amendment or if the permittee requests and obtains a Compliance Plan in accordance with the applicable Rules and Regulations.

Basis – This change is needed to make the provision compliant with EPA's NPDES regulations. It properly places the duty on EQB to stay compliant with the PRWQSR by issuing a timely revised WQS if a relevant section of the PRWQSR is modified. In addition, PREPA cannot accept a requirement which could require it to place immediate operational restrictions on its activities at the APPC due to a change in the PRWQs during the permit term because it is a public corporation which is the only provider of electrical energy to most of Puerto Rico. Because the APPC supplies approximately 25% of the electrical power on the Island, acceptance of a condition which could lead to the requirement to reduce or shut down operations at the APPC is unacceptable.

10. Add Special Condition 27: PREPA requests the following language be added as a new Special Condition associated with Outfalls 001A and 004A related to Hydrostatic Test Water Requirements:

All tanks being hydrostatically tested will follow the following procedure.

- After construction or reconstruction of the tank, sandblasting (most common) or other technique will be used to clean the tank.

- A vacuum truck or other equipment will remove all residues from the tank prior to testing.

-In addition, the water source for the hydrostatic testing will be fresh (potable) water supplied by the Puerto Rico Aqueduct and Sewer Authority (PRASA) or other source of fresh water.

Permittee will generally follow ASTM hydrostatic test standard # E1003-95 or other valid procedure before the discharge. Oil and Grease analyses will be performed on the surface and the middle of the tank. Also, visual inspection will be performed after the test to look for oil sheen in the used hydrostatic test water. If an oil sheen is observed, the discharge shall be stopped. PREPA will include a written report in the DMR-Addendum of the date of each discharge.

EPA Response III

All Special Conditions are included as required by the final water quality certificate issued by EQB on September 16, 2010.

PART IV – SPECIFIC COMMENTS TO ADDITIONAL CONDITIONS

1. Section C (1) Additional Requirements- Section 316(b) Requirements

a. **Issues** - As outlined in Section I.C above, PREPA believes that the following conclusions of the 316(b) Determination are in error and must be modified:

- That the existing CWIS cannot be considered BTA because: the current traveling screen debris return system is not designed or operated in a manner that minimizes injury and mortality of injured fish. (§1.1 of Attachment IV to the draft APPC NPDES permit Fact Sheet.)
- That “prevention of entrainment of fish and shellfish cannot be counted as part of the overall reduction of impingement mortality and entrainment.” (Id.)
- That to be BTA, the existing CWIS system must have its .. fish return system modified to include fish buckets and gently sloped, smooth surfaces with an underwater discharge, .. traveling screens operated continuously, and .. wash water pressure reduced to “low” on its traveling screens wash system.

b. Background and Highlights from Prior Studies - Before discussing each of the errors listed above, this section briefly lists some of the key facts and conclusions reached in the following two recent CWA §316(b)-related studies:

a. Impingement Mortality & Entrainment Characterization Study and Current Status Report Aguirre Power Plant Complex, January 28, 2008 (APPC CWIS Study)

b. Aguirre 316 Type II Demonstration Study, March 2005 (APPC 316 Demonstration Study).

- Each intake bay has vertical dual-flow traveling screens (APPC CWIS Study at §3.2.)
- The dual flow intake screen systems have:
 - .. 1/4 inch (0.25-inch) square mesh openings with smooth surface mesh panels, woven to minimize physical abrasion (Id. at §3.4 and APPC 2010 BTA Determination) at §2.3.1) .. Fish buckets at the bottom of each screen panel.
 - A fiberglass fish and debris trough that discharges to a common return trench through which the fish and debris are sluiced by gravity flow back to Jobos Bay. At the end of this trench, the water cascades approximately 9-10 ft to the water’s surface at a considerable distance from the intake (id.) and from the end of the discharge canal.
 - Impinged fish and debris trapped on the screens are washed off by a pressurized spray (between 10 and 90 pounds per square inch gage – psig, typically set at 40 psig, but can be adjusted within this range) into the screen wash troughs (Id.) o Traveling screen rotation is normally continuous. If needed for maintenance or repair purposes, rotation can be started and stopped. The screens rotate at a travel speed of either 15 or 45 feet per minute. (APPC CWIS Study at §3.2)
- The annual average impingement rate is 0.58 fish per hour and 4.1 shellfish per hour. The average impingement rates for the approved “Representative Species” (RS) were 0.3 fish and 3.9 shellfish per hour. (APPC CWIS Study at §2.5.)
- While entrainment rates were found to vary when the 2003-2004 results were compared to the 2007 results, perhaps due to natural year-to-year variability and/or the number of sampling events, entrainment rates per 100 m³ of water flow were generally low as summarized in the table below (Id.):

Year	Fish Eggs	Shellfish	Fish Larvae
2003-2004 (All)	1,870	6,393	395
2003-2004 (RS only)		3,183	134
2007 (All)	363	3,578	8
2007 (RS only)		2,298	2.83

- The eggs and larvae potentially subject to entrainment generally have little or no controllable mobility. Instead they float with the wind and tide. In theory, entrainable organisms which are present in the water which flows into the intake will be entrained. However, entrainment sampling during the 2007 study was performed at both the intake and the discharge to evaluate fish and shellfish plankton actually being entrained through the APPC rather than just the potentially entrained population existing in front of the CWIS. Results from this assessment showed a significantly smaller number of ichthyoplankton and

shellfish meroplankton in the discharge, indicating that much of the plankton are being blocked at the intake, likely by seagrass (*Thalassia testudinum* and *Syringodium fihiforme*) that collects on the intake screens. The percent reduction in fish and shellfish entrainment using the limited discharge data ranges between 80 to 88 percent, supporting the conclusion that entrainment impacts from the APPC are negligible. (See APPC CWIS Study §§ 4.1, 2.4.2 and Appendix B.)

- Impingement rates at the APPC intake are very low for both fish and invertebrates and affect a very minor fraction of the study area population. (APPC 316 Demonstration Study at §5.3.6.)
- 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, a 98 percent initial survival rate was documented. The total combined initial survival for impinged fish and shellfish is 95 percent. (Id. at §2.4.2.)
- The ichthyoplankton of first class, commercially important fish (*Lutjanidae*) and second-class fish (*Sciaenidae*) were sampled in low abundance at the APPC intake resulting in the loss of low adult equivalents. Other recreationally important species such as groupers and sea bass (*Serranidae*), mackerels and tunas (*Scombridae*), boxfishes (*Ostraciidae*) and parrot fishes (*Scaridae*) and sport fish such as tarpon (*Megalops atlanticus*) were absent in the APPC intake ichthyoplankton samples. (Id.)
- The study mean abundance of fish eggs at the intake Station during day samplings in the 2003-2004 study was 4.4 times higher than the study mean reported by Youngbluth (1974) for the intake Station some 30 years ago. The study mean abundance of larvae was 2.3 times higher than the study mean reported by Youngbluth. This suggests that the reproductively active fish populations regulating the flux of eggs and larvae at this locality have maintained or increased their stocks with respect to the conditions in 1974. (Id.)
- The Goodyear/Horst and GEMSS-ENM models suggest there is little to no effect of APPC CWIS operations on the modeled species' populations within the Jobos Bay and contributing offshore populations. (Id.)
- The Aguirre Power Plant Complex intakes system does not directly or indirectly affect any threatened or endangered species or Critical Coastal Wildlife areas. (Id.)
- The Aguirre Power Plant Complex intake is located in a low potential impact area and thus Best Technology Available for location. (Id.)

c. Discussion and Requests for Changes – This section (items i-iv) addresses each of the issues raised in §1(a) above and ends with a series of requested changes to the proposed 316(b) related permit conditions. Item (v) follows with an explanation of the basis for each of the requested changes.

a. **Common Issue** - The intake areas around APPC meets the definition of “low impact” under the 1977 316(b) Guidance. Further, the last two studies of impingement rates at the APPC have indicated that the overall impingement rate is low and that few of the designated Representative Species are being impinged. The initial survival rate is high (61 to 98%), although because impingement rates are low to begin with, estimates of survival are not as accurate as they would be at a CWIS with higher impingement rates. Therefore, due to a combination of location and design, the current CWIS system and operational methods already minimize adverse impact due to impingement mortality.

b. **Draft Permit Requirement** - The current traveling screen debris return system is not designed or operated in a manner that minimizes injury and mortality of injured fish. Specifically, the fish return system must be modified to include fish buckets, gently sloped, smooth surfaces with an underwater discharge point. Each traveling screen is already equipped with a fish bucket. In addition, the existing debris and fish return system is lined with fiberglass giving it a relatively smooth surface. Whether modifying the slope of the fish and debris system trench would materially affect impingement survival rates has not been evaluated.

c. **Draft Permit Requirement** - The current traveling screen debris return system is not designed or operated in a manner that minimizes injury and mortality of injured fish. To be deemed BTA, the traveling screens must be operated continuously and the screen wash water pressure reduced to low. The APPC screen backwash system’s pressure already is low or relatively low, as it operates at between 10 and 90 pounds per square inch gage – psig. Typically the backwash pressure is set at 40 psig, but it can be adjusted upwards or downwards within this range, depending on debris loading conditions. EPA, in its Fact Sheet on Conventional Traveling Screens indicated that screen wash pressures of 80 to 120 PSI were classified as “relatively high”⁵. Therefore, the APPC already uses a low to, at most, the low end of “relatively high,” wash water spray pressures on the APPC traveling screens.

d. **Draft Permit Requirement** – *The traveling screens must be operated continuously.* As the APPC CWIS traveling screens are already operated continuously, at most, the BTA determination should mandate the continuation of this mode of operation.

d. Requested Modification to the NPDES Permit Condition and the 316(b) Determination document

While PREPA is willing to evaluate further capital or operational changes to evaluate whether they will lead to further measurable reductions in injury and mortality to the fish and shellfish that are impinged or entrained, it is not willing to agree to automatically make such changes. The reason for his unwillingness is because the APPC impingement and entrainment data indicates that the incremental increase in impingement mortality reduction may not merit the cost of⁵ the capital changes or operational issues triggered by the requirement.⁶

Consistent with the recommendation in the APPC CWIS Study, **PREPA requests that the first Additional Condition (draft NPDES permit §I.C (1)) be modified along the lines of the changes shown below.** Similarly, the underlying 316(b) Determination Document⁷ (Attachment IV to the Fact Sheet accompanying the draft NPDES permit) **should also be modified.**

⁵ See Section 316(b) TDD Chapter 5 for New Facilities, Chapter 5, Attachment 1, Fact Sheet #1. Available on the web at <http://www.epa.gov/waterscience/316b/phase1/technical/ch5.pdf>.

⁶ After discussion with EPA either a “wholly disproportionate cost to benefit” test, or some other reasonable quantitative or semi-quantitative assessment of the relative benefits of the incremental reduction of fish and shellfish IM&E compared to the cost of implementing the technologies or operational changes needed to achieve the incremental increased IM&E reduction will be prepared.

⁷ The 316(b) Determination document (at §4.0) currently contains the wrong cross-reference to the draft permit. It references Special Condition No. 25, which is a CWA elated conditions rather than Additional Condition No. 1.

[Draft APPC NPDES Permit Additional Requirement I.C (1)]

Bold, italics indicates requested new language, strikeout indicates requested deletion.

As required by Section 316(b) of the Clean Water Act (CWA 316(b)), the location, design, construction, and capacity of the cooling water intake structures for the permittee's facility shall reflect the "best technology available for minimizing adverse environmental impact" (BTA).

Based on the intake study submitted by PREPA entitled *Impingement Mortality and Entrainment Characterization Study and Current Status Report: PREPA Aguirre Power Plant Complex* on January 30, 2008, (referred herein as "Aguirre Study"), a review of site-specific factors at the facility and other relevant information, EPA Region II has determined that, at this time, the BTA for this facility shall be the current control measures employed at the Aguirre Power Plant Complex, as well as adherence to the permit conditions and schedule of compliance listed below:

a. Performance Standards

By the expiration of this permit, the permittee must select, implement and/or install *the* technologies and operational measures *listed below and evaluate other potential measures listed below with a goal of meeting* the following performance standards:

- i. Impingement Mortality Performance Standard . Reduce fish and shellfish impingement mortality by a minimum of 80% from the calculation baseline.
- ii. Entrainment Performance Standard . Reduce fish and shellfish ~~impingement~~ *entrainment* mortality by a minimum of 60% from the calculation baseline, *credit for entrainment reduction caused by seagrasses impinged on the intake screens or other similar causes can be taken.*

Subject to the reopener clause in (e) below, use of these technologies and practices listed in (b) below, will be deemed to be BTA even if the numeric performance standards above are not met.

- b. Selection of Control Measures to Reduce Entrainment and Impingement Mortality
- ~~i. By EDP + 1 year, the permittee must submit to EPA a plan for modifications to the facility to include an appropriate fish return system. Such modifications must include the addition of a gently sloped, smooth surface, fish return discharging underwater.~~
 - ii. **By EDP + 1 year**, the permittee must submit an evaluation of possible changes in operation and maintenance practices/procedures for the intake structure that could lead to further *significant* reductions in impingement mortality and/or entrainment. This evaluation shall include an assessment of the feasibility of reducing impingement mortality by modifying the screen/screen wash system (such as ~~modifying the frequency of screen rotation and cleaning, changing the screen coating, and/or~~ reducing the screen wash pressure, and/or improving the effectiveness of the fish return system).
 - iii. The permittee shall utilize the existing closed-cycle cooling system to the maximum extent practicable to reduce the flow required through the intake structure.
 - iv. The permittee shall utilize the five intake screens to the maximum extent possible *when their downstream unit is on-line* to keep the intake velocity at a minimum level.
 - v. *The permittee shall continue to use spray wash pressures in the 10 to 90 psi range, with a goal of keeping the pressure as low as reasonably possible. It also shall continue to operate the traveling screens continuously to the maximum reasonable extent.*
- c. The permittee shall implement the controls outlined in the evaluation by **EDP + 2 years**, *unless the evaluation supports a longer implementation period.*
- d. By **EDP + 4.5 years**, as an attachment to the NPDES Permit Renewal Application, the permittee must submit a detailed analysis of the cumulative reductions in entrainment and impingement mortality achieved since EDP.
- e. Pursuant to 40 CFR 122.62, should EPA determine that the currently implemented technologies and other measures do not reflect BTA, EPA may reopen and modify this permit to include a CWA 316(b) schedule of compliance, which may include, but will not necessarily be limited to proposed design and construction technologies and/or operational

measures identified by the permittee. EPA may also reopen and modify this permit to comply with requirements of new regulations, standards, or judicial decisions relating to CWA 316(b).

Basis for the Request:

- a. Performance Standards The evaluations done for the current BTA determination have concluded that the two numeric impingement mortality and entrainment performance standards can be met by the specified current technologies and practices. However, as shown by a comparison of the 2003-2004 and 2007 IM&E measurements, there can be a high degree of variability in IM&E measurements and, hence, in the calculated IM&E reductions, most likely reflecting the high natural variability in fish and shellfish populations. Thus it is possible that continued operation of the identified technologies and practices, even if enhanced by the additional ones to be evaluated during this permit term, may yield lower calculated IM&E reduction rates just due to natural population variability. Because of this, it would be arbitrary, capricious and unreasonable to impose the numeric reduction goals as enforceable standards. Instead the enforceable requirement should be the continued use of the suite of technologies and operating practices identified in part (b).

Further, the 316(b) Determination document uses faulty logic to disallow the claimed entrainment reduction caused by seagrasses or other debris impinging on the intake screens filtering out entrainable organisms. Such naturally occurring debris prevents entrainment through the same mechanism fine mesh screens which are an often approved entrainment reduction method. However, entrainable organism removal by seagrass and other debris has the additional advantage of there likely being a higher level of entrainment survival for the small organisms which are excluded from entering the intake because many of them are likely washed off with the seagrass when is removed during screen washing and returned to Jobos Bay. Because of this, PREPA's requested provision allows credit to be taken for entrainment reduction due to seagrass and other debris impingement. Credit for this removable is approvable because consideration of this mechanism would fall under CWA §316(b) BTA "location" criteria.

Finally, the restated entrainment reduction goal allows, but does not require, a study of entrainment survival to be done by stating the entrainment reduction goal in terms of 'entrainment mortality' rather than just entrainment. As indicated in the APPC 316 Demonstration Study, the entrainment modeling summarized in that report assumes 100 % mortality, which is consistent with the suspended CWIS Phase II rules.

However, since the adoption of those rules, numerous studies have been done which indicate high levels of entrainment survival at many Power Plants. For example, EPRI's Entrainment Survival: Status of Technical Issues and Role in Best Technology Available (BTA) Selection⁸ documents significant survival and identifies some of the condition which promote such survival.

⁸ Electric Power Research Institute, Product ID: 1019025, 12/22/2009. Abstract available at http://my.epri.com/portal/server.pt?space=CommunityPage&cached=true&parentname=ObjMgr&parentid=2&control=SetCommunity&CommunityID=404&RaiseDocID=000000000001019025&RaiseDocType=Abstract_id Environment. EPRI is scheduled to release a report on entrainment survival measurement methods this fall.

b. Selection of Control Measures – Item I must be removed because each traveling screen is already equipped with a fish bucket. PREPA questions rather adding additional fish buckets would measurably increase the survival of the low number of impinged fish. An evaluation would be needed to see if this addition would materially further reduce the already low impingement mortality levels. In addition, the existing debris and fish return system is lined with fiberglass giving it a relatively smooth surface. There is also no indication that installing a new or retrofitting the existing fish and debris return system which has “smooth sides” and is “gently sloped” will measurably improve the impinged fish survival rate. Finally, while a modification to the fish return system to eliminate the current 9 to 10 foot drop into Jobos Bay may improve survival rates, PREPA is not convinced that having an underwater discharge point is the best orientation for an enhanced return as such an underwater discharge would cause the returned fish and shellfish to be exposed to an increased pressure. It may be that a return at or just above the surface of the water would be better for fish survival.

In item ii, because the APPC already uses low to only moderately high pressure to wash its screens, and because its traveling screens already are operated continuously, the requirement to evaluate these as possible additional control measures must be deleted. Item (v) has been added to require operation of these two systems to the maximum reasonable extent.

In item (iv) it would be counterproductive to operate intakes and their related screens when their downstream units are not generating electricity. The suggested change is meant to clarify that if, for example, Unit 1 is not operations, the intake screens serving Unit 1 do not have to be operated.

Schedule for Implementing Newly Identified Technologies or Other Control Measures – If the evaluations which are required by item b (ii) conclude that a capital change (such as improving the effectiveness of the fish return system) will lead to material further reductions in impingement or entrainment mortality, then PREPA likely will need more than a year to gain approval to fund the purchase, installation and operation of the technology or operational changes. Because PREPA is a public corporation it has multiple internal and, sometimes, external approvals that must be obtained before a capital expenditure can occur. Further, depending on the technology to be purchased, there is a high likelihood that it will be manufactured outside of Puerto Rico adding additional delays in ordering and shipping. Therefore PREPA is requesting that the Evaluation Report that must be submitted by EDP + 1 year be allowed to include a longer (than 1 year) purchase, installation and operation schedule. Of course, such an extended schedule must be supported in the Evaluation Report by a written explanation and justification as to why more than 1 year is needed.

EPA Response IV

In response to the permittees annotated suggestions and notes, EPA has made some modifications to the compliance schedule for achieving Best Technology Available (BTA) for minimizing impingement mortality and entrainment. EPA has adjusted some of the submission deadlines, and operational considerations based on feedback from the permittee specific to the Aguirre Power Plant Complex. However, EPA maintains that the facility does not currently meet BTA for minimizing impingement mortality and entrainment. While we note that the travelling screens do contain fish buckets, EPA’s concern relates to the lack of a survivable pathway from the travelling screens back to the receiving water for the fish that are collected in the fish buckets.