

EXHIBITS

Exhibit A

COMMENTS ON THE DRAFT APPC NPDES PERMIT FILED BY PREPA

COMMONWEALTH OF PUERTO RICO
PUERTO RICO ELECTRIC POWER AUTHORITY
SAN JUAN, PUERTO RICO



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July 9, 2010

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Ms. Michelle Josilo, Chief
Clean Water Regulatory Branch
US Environmental Protection Agency, Region II
290 Broadway- 24th Floor
New York, New York 10007-1866

Re: Comments on Draft NPDES Permit PR0001660 – Aguirre Power Complex

Dear Ms. Josilo:

On June 11, EPA issued the National Pollutant Discharge Elimination System (NPDES) Draft Permit for our Aguirre Power Complex. According to the Notice No. 2010-18, *Announcement of Preparation of Draft NPDES Permit and Permit Modification*, Puerto Rico Electric Power Authority (PREPA) and any other interested person have 30 days¹ to submit written comments and/or request a public hearing. Accordingly, hereby PREPA submits the attached comments on the Draft Aguirre NPDES Permit.

As EPA is aware, this Permit cannot be finalized until a final Water Quality certificate (WQC) is issued by the Puerto Rico Environmental Quality Board. PREPA's timely comments on the draft Water Quality Certificate (draft WQC) issued by the Environmental Quality Board (EQB) in February 2010 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. PREPA submitted a copy of its comments on the Draft WQC to EPA last April. The issues which PREPA has raised with respect to the Draft WQC are identified and repeated in these comments to the Draft NPDES Permit.

¹ The 30 days ends on Sunday July 11, which is a Sunday. 40 CFR 124.20 (c) provides that a comment period which end on a weekend are automatically extended to the next working day, which in this case is July 12, 2010.

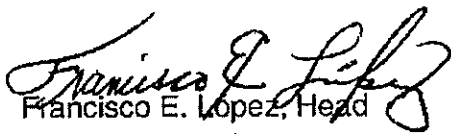
Ms. Michelle Josilo, Chief
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Our comments on the Draft NPDES Permit are also extensive. To facilitate EPA's review of them, they have been divided into four (4) broad topical areas:

- **General Comments (Part I)** addressing issues such as the need for a final Water Quality Certificate, and an overview of the issues relating to Sections 316 (a) and (b) of the Clean Water Act, including the proposed establishment of an interim mixing zone by the Environmental Quality Board.
- **Outfall Specific Comments (Part II)**
- **The Special Conditions Requirements (Part III)** and
- **The Additional Requirements (Part IV).**

We look forward to working with EPA as it finalizes this draft Permit. It is PREPA's hope that all of the issues raised in these comments can successfully be resolved before the final NPDES permit is issued. To facilitate this, our personnel are available to discuss these comments with your staff during either a conference call or a face-to-face meeting. If you would like to schedule either a call or a meeting, or if EPA has any questions on the enclosed comments, please do not hesitate to contact us at 787-521-4959.

Cordially,


Francisco E. Lopez, Head
Environmental Protection
and Quality Assurance Division

Enclosure

cc Carl Soderberg, EPA
Roberto Ayala, EQB

**Comments to the Draft
National Pollutant Discharge Elimination System Permit
Aguirre Power Plant Complex
NPDES Permit No. PR0001660
July 2010**

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.

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 Aqueducts 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 probable 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.

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,

- o after 35 years, and
- o 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
- o 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.**

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.

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.

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 IV² 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:

- o 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.
- o That "prevention of entrainment of fish and shellfish cannot be counted as part of the overall reduction of impingement mortality and entrainment."

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

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 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.

b. Color:

- i. **Monitoring Location** -- This requirement was included in PREPA's comments on the ITIWQCDAMZ. The "β" 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.

- 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.**

- 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.**

- 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.**
- 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.**
- 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 demonstrated 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.

- 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.

- i. Cadmium:** Neither in the ITIWQC 2007 nor the ITIWQCDAMZ 2010 from the EQB included monitoring requirements for this parameter. Hence, PREPA respectfully requests the elimination of this parameter.
- 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.
- k. Temperature:** See the Comment 7 on Part III below.

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.

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.

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

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.

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.

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. **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 for this parameter either be eliminated or its frequency reduced to quarterly.

- 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.

- 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.

- 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.

- 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.

- 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.
- 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.

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.

- 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.

- 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 ε 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.**

- 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.

- 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

- 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.

- 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.**
- i. Mercury:** This parameter is not included in the ITIWQCDAMZ. Therefore, **PREPA respectfully requests the elimination of this parameter.**
- j. Discharge Description:** The description of this Outfall should add contributions of wastewaters from Condenser Cooling Water Screen Washwater.

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.

- 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.

7. Table A-4 (Outfall 004):

- 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 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.

- 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 ITIWQCDAMZ. 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.

- 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]

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.

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.

- 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.

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	7000
2007	4000	7000	9000	5000
2006	5000	5000	8000	<4000
2005	5000	<4000	<4000	8000

Year	May	Jun.	Jul.	Aug.
	Effluent µg/L	Effluent µg/L	Effluent µg/L	Effluent µg/L
2009	<4000	9000	<4000	<4000
2008	25000	<4000	<4000	<4000
2007	<4000	<4000	<4000	<4000
2006	<4000	<4000	<4000	<4000
2005	<4000	7000	<4000	11000

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	11000	6000
2007	<4000	<8000	<4000	<4000
2006	5000	5000	<4000	6000
2005	9000	<4000	<4000	<4000

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

As discussed in past correspondence with EP 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.

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.**

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.**

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

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.**

- 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.**

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 APPC 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.

- 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, APPC 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.**

- 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.**

- 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.**
- 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.
- 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 process-related 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.**

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.

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

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

- o 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 $\Delta 3\text{ }^{\circ}\text{C}$ and $1\text{ }^{\circ}\text{C}$ 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 $\Delta 3\text{ }^{\circ}\text{C}$ (above ambient) thermal plume to be approximately 62,658 m².⁴ 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 $\Delta 3\text{ }^{\circ}\text{C}$ 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 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 $\Delta 3^{\circ}\text{C}$ 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.

**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.

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 ΔT 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.

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:

- o 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.)
- o That “prevention of entrainment of fish and shellfish cannot be counted as part of the overall reduction of impingement mortality and entrainment.” (Id.)
- o 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.)
 - 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.)

- o 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

- o 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 filiforme*) 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.)
- o 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.)
- o 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.)
- o 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.)

- o 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.)
- o 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.)
- o The Aguirre Power Plant Complex intakes system does not directly or indirectly affect any threatened or endangered species or Critical Coastal Wildlife areas. (Id.)
- o 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 this unwillingness is because the APPC impingement and entrainment data indicates that the incremental increase in impingement mortality reduction may not merit the cost of

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>.

the capital changes or operational issues triggered by the requirement⁶. 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.**

[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.*

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 related conditions rather than Additional Condition No. 1.

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 under water.~~
 - 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) Selection*⁸ documents significant survival and identifies some of the condition which promote such survival.

- 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

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=00000000001019025&RaiseDocType=Abstract_id Environment. EPRI is scheduled to release a report on entrainment survival measurement methods this fall.

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.

APPENDIX 1

FIGURES RELATED TO THE
2005 APPC 316(a) DEMONSTRATION STUDY

Figure 5-11. Thermal Plume Model Results, High Tide
March 2004

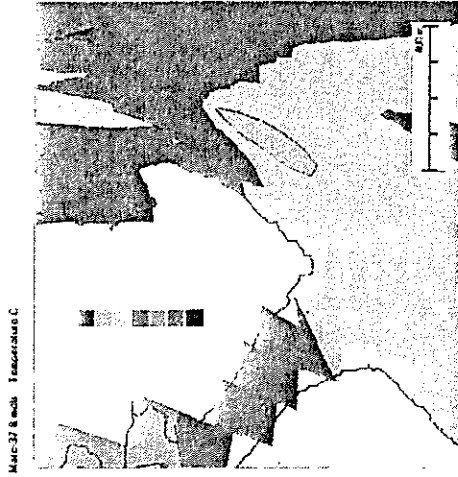


Figure 5-13. Thermal Plume Model Results, Ebb Tide
March 2004

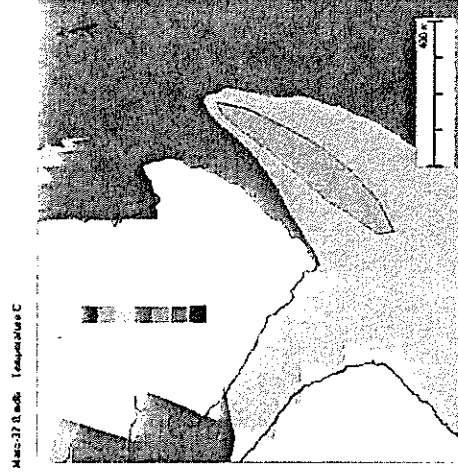


Figure 5-12. Thermal Plume Model Results, Flood Tide
March 2004



Figure 5-14. Thermal Plume Model Results, Low Tide
March 2004

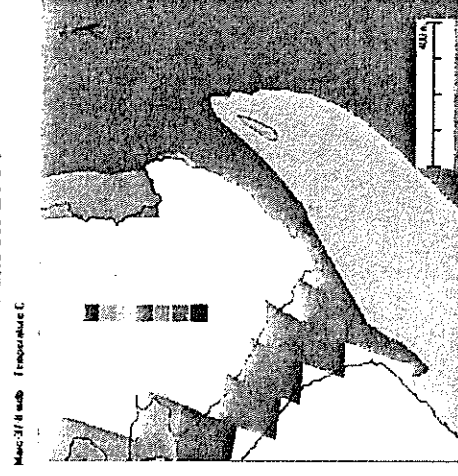


Figure 5-15. Observed Thermal Plume, High Tide
March 2004

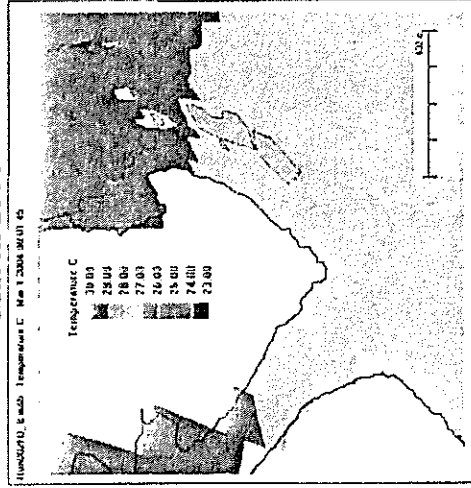


Figure 5-17. Observed Thermal Plume, Ebb Tide
March 2004

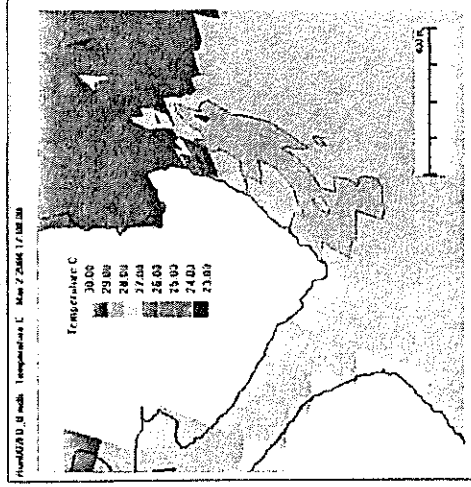


Figure 5-16. Observed Thermal Plume, Flood tide
March 2004

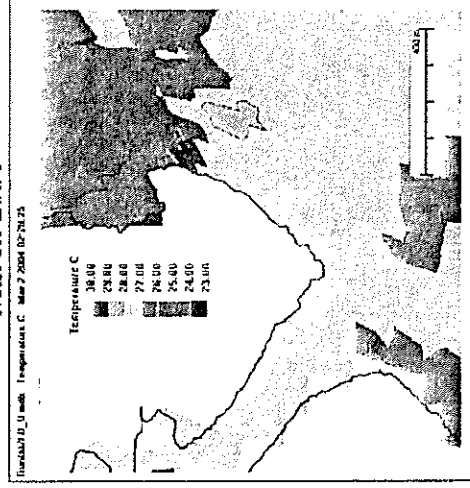


Figure 5-18. Observed Thermal Plume, Low Tide
March 2004

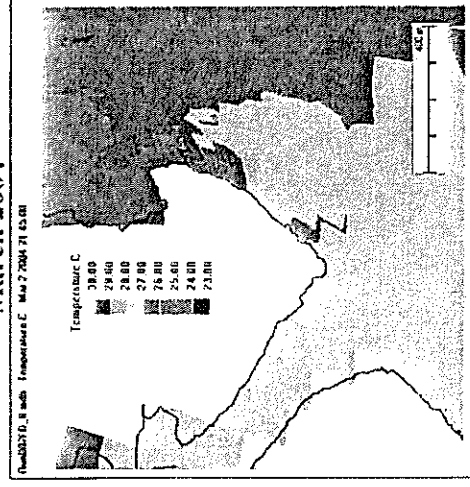


Figure 5-19. Thermal Plume Model Results, High Tide
September 2003



Figure 5-21. Thermal Plume Model Results, Ebb Tide
September 2003

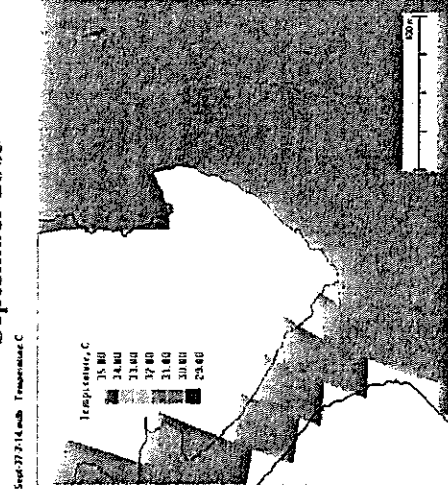


Figure 5-20. Thermal Plume Model Results, Flood Tide
September 2003

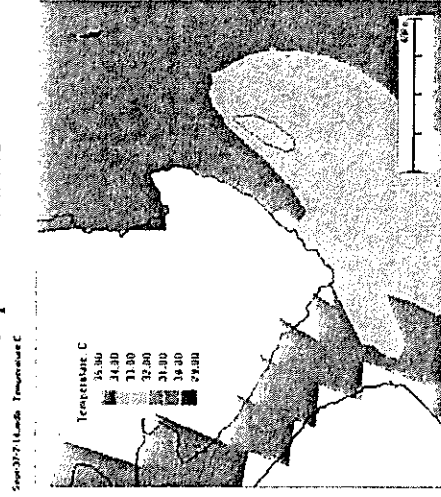


Figure 5-22. Thermal Plume Model Results, Low Tide
September 2003



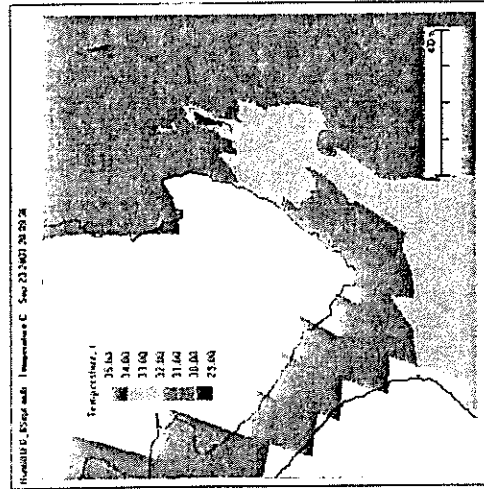


Figure 5-23. Observed Thermal Plume, High Tide
September 2003

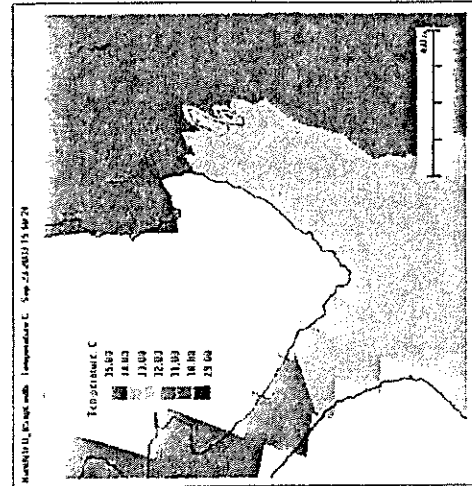


Figure 5-24. Observed Thermal Plume, Flood Tide
September 2003

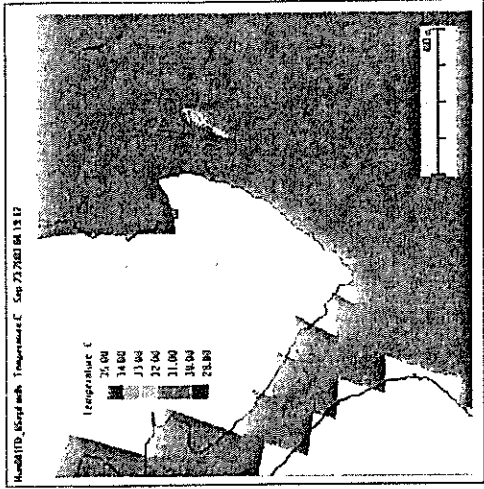


Figure 5-25. Observed Thermal Plume, Ebb Tide
September 2003

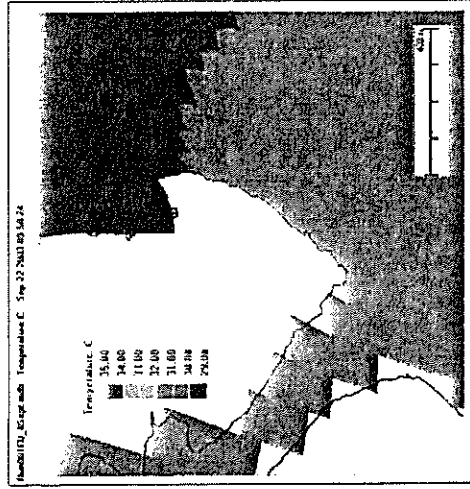


Figure 5-26. Observed Thermal Plume, Low Tide
September 2003

Figure 5-27. Maximum Temperature Rise Isotherms at the Surface due to Cooling Water Discharge into Jobos Bay

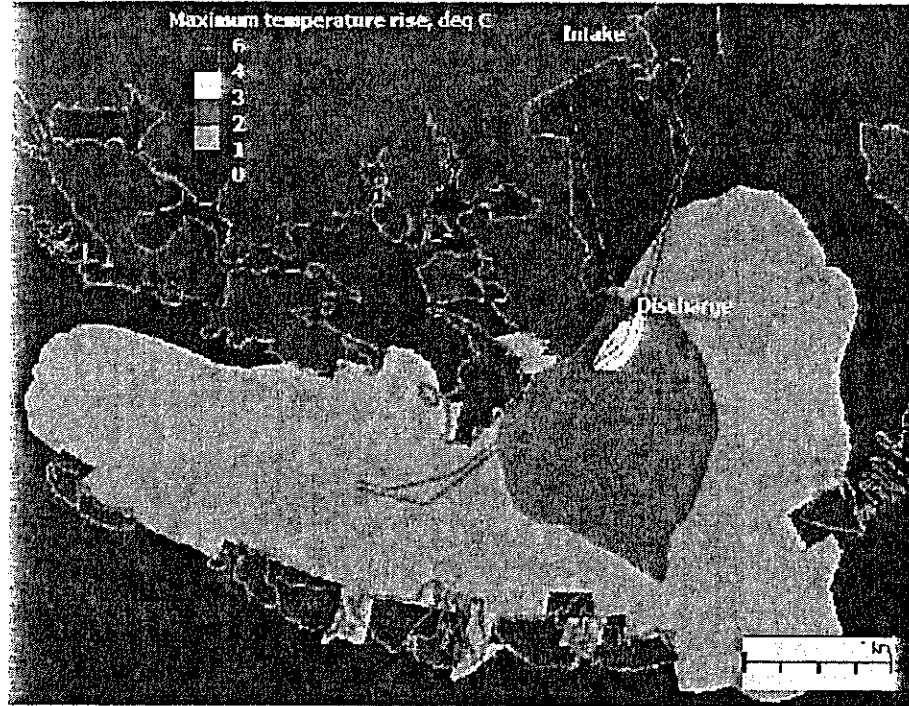


Figure 5-28. Maximum Temperature Rise Isotherms at the Bottom due to Cooling Water Discharge into Jobos Bay

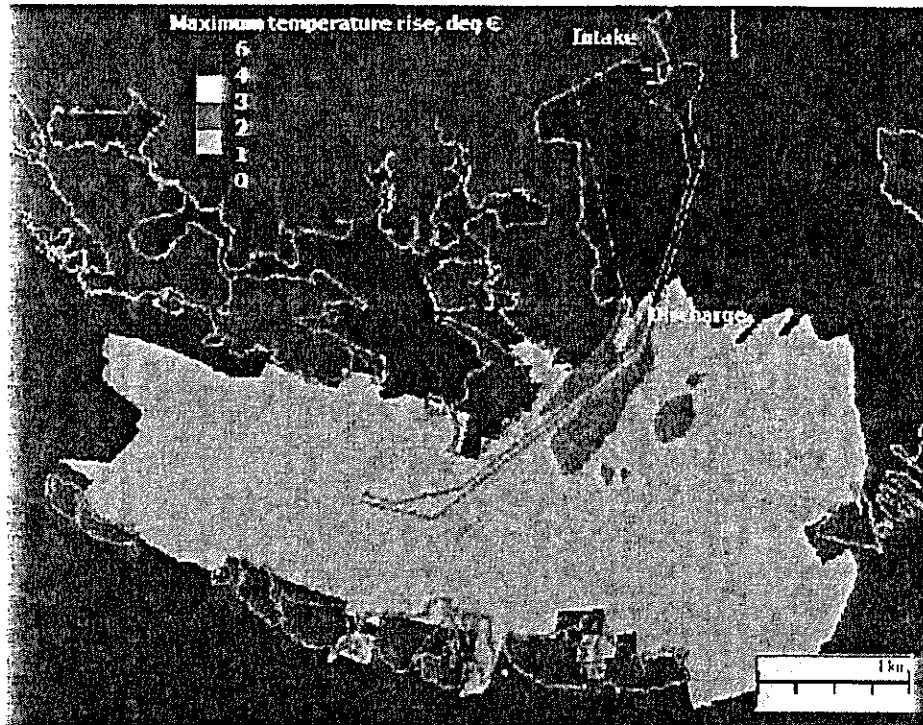


Figure 5-29. Transect Along the Plume Centerline used for Visualizing a Vertical Isotherm Plot

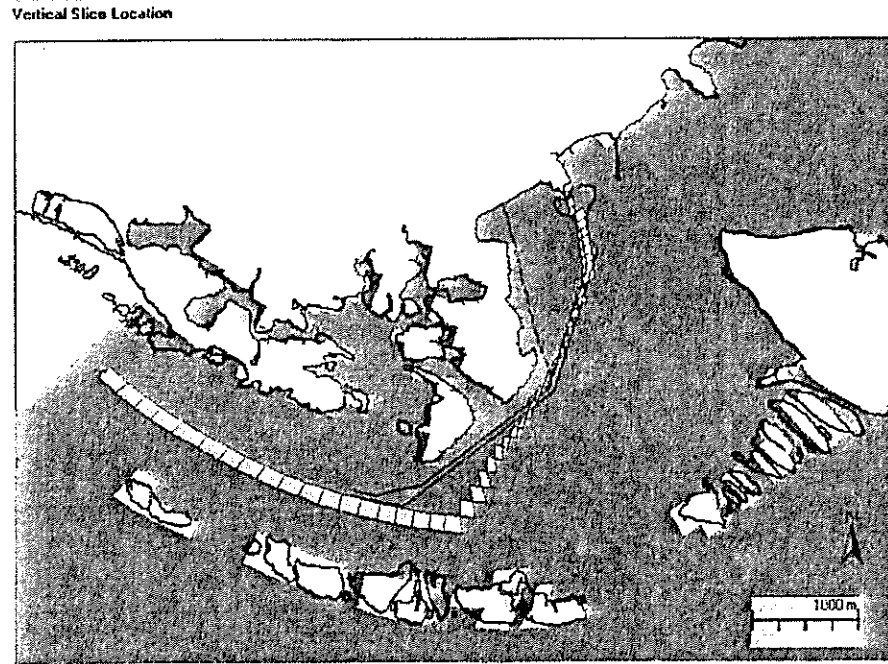


Figure 5-30. Vertical Isotherms of Maximum Temperature Rise Along the Plume Centerline due to Cooling Water Discharge into Jobos Bay (based on the model grid transect shown in Figure 5-29)

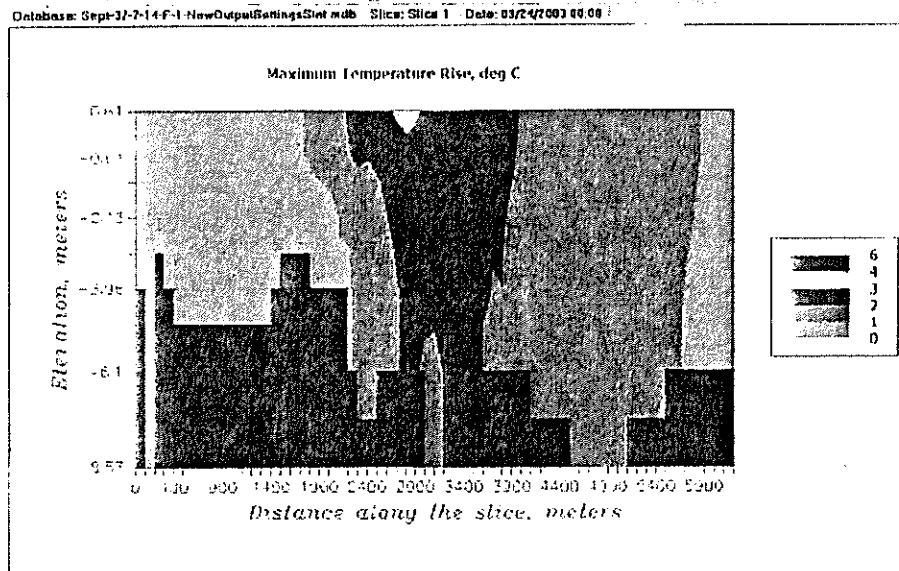


Figure 5-31. Surface Area Impacted by the Plume Exceeding 3 °C Above Ambient
(at 95 percent of the Operating Time of the Facility)

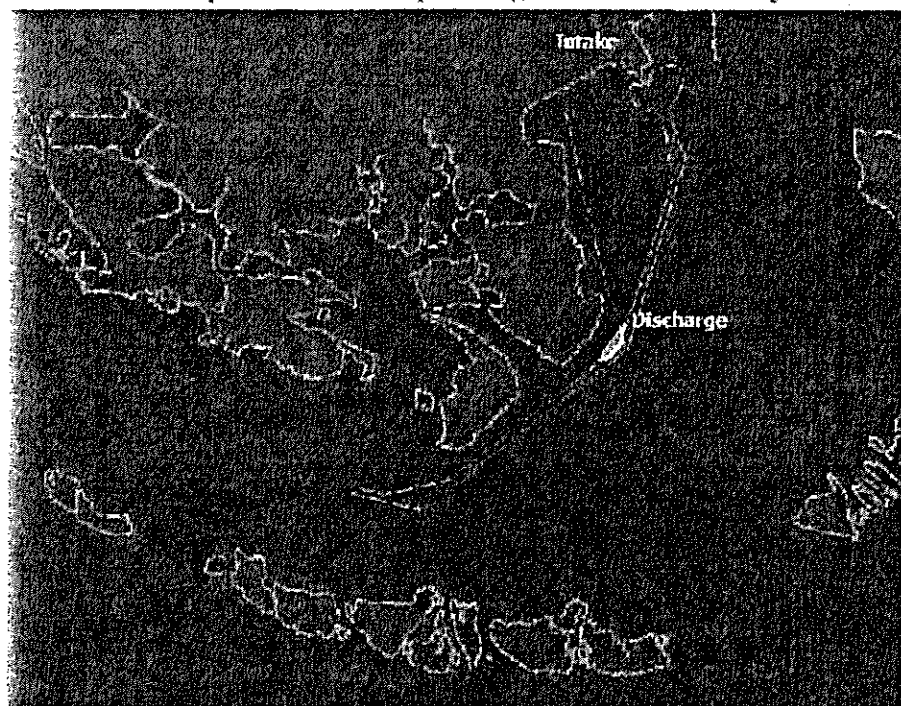


Figure 5-32. Bottom Area Impacted by the Plume Exceeding 3 °C Above Ambient
(at 95 percent of the Operating Time of the Facility)

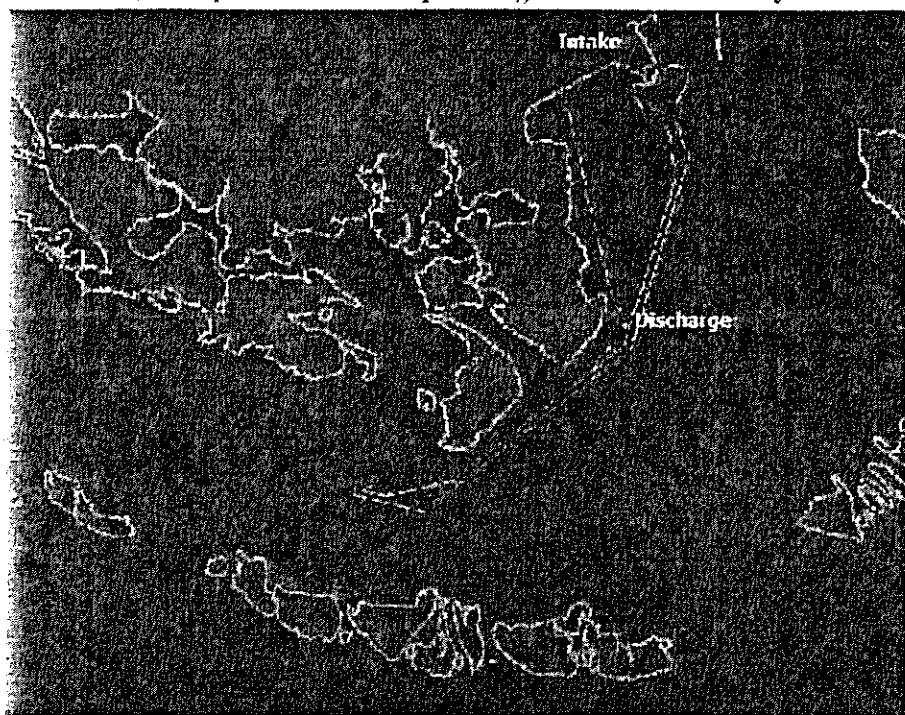


Figure 5-33. Isotherms of Maximum Temperature at the Surface due to Cooling Water Discharge to Jobos Bay at an Average Ambient Temperature of 86.75 °F

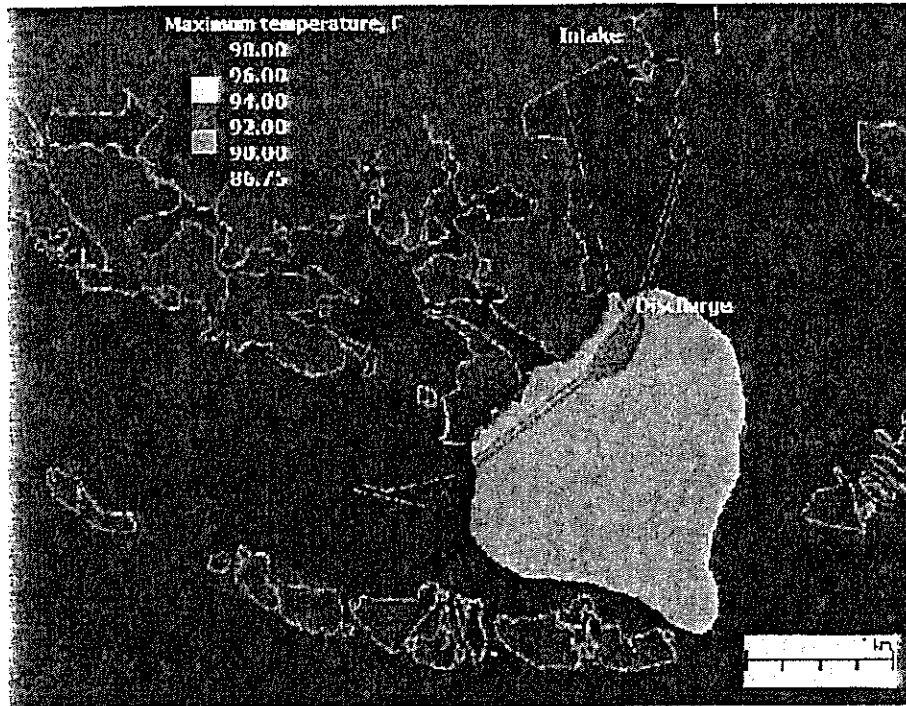
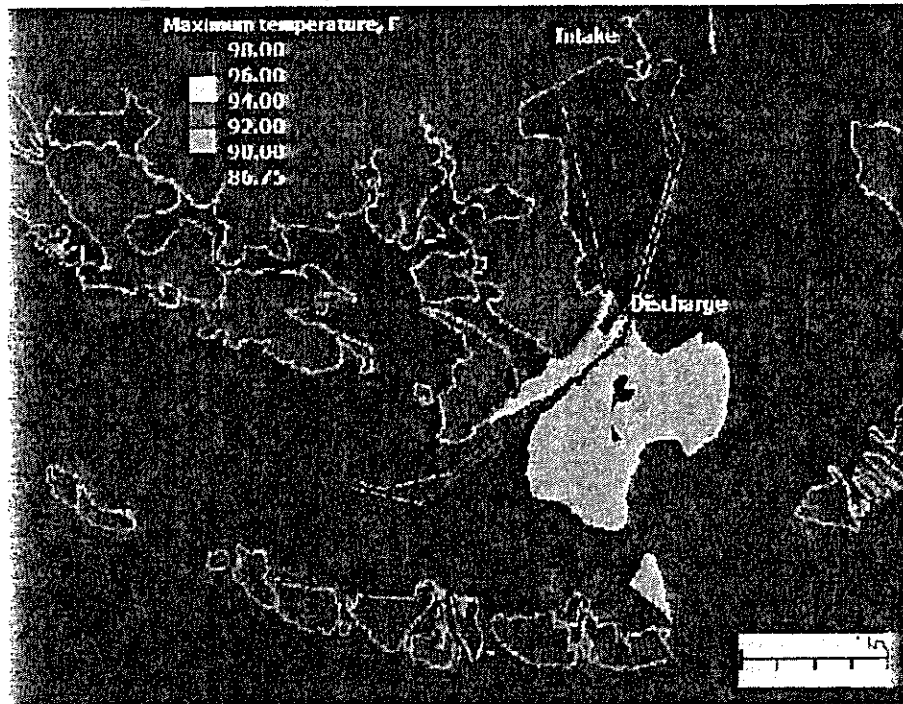


Figure 5-34. Isotherms of Maximum Temperature at the Bottom due to Cooling Water Discharge to Jobos Bay at an Average Ambient Temperature of 86.75 °F



APPENDIX 2

LETTERS RELATED TO THE DRAFT PERMIT
126 PRIORITY POLLUTANTS REQUIREMENTS

PUERTO RICO ELECTRIC POWER AUTHORITY

San Juan, Puerto Rico

Cable Address
PREPA



G.P.O. Box 4267
San Juan, Puerto Rico 00936-4267

RETAIN THIS NUMBER-CUSTOMER
RECEIPT WILL BE MAILED TO YOU.

TB431405084 US

February 26, 1993

EXPRESS MAIL TB431 405 084

Regional Administrator
Region II
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10278

Attn: Permits Administration Branch

RE: Notification Regarding PREPA Palo Seco, Aguirre,
South Coast and San Juan Power Plants; NPDES Nos.
PR0001031, PR0001660, PR0001147 and PR0000698

The Puerto Rico Electric Power Authority (PREPA) hereby provides the United States Environmental Protection Agency (EPA) with notification that it is changing the corrosion inhibitor chemical additives that it uses in its cooling towers. The enclosed report describes the new corrosion inhibitor and provides all applicable NPDES notification requirements.

Should you have any questions regarding this submission, please contact Eng. Héctor M. Alejandro, Head of PREPA's Environmental Protection and Quality Assurance Division.

Cordially,

Angel L. Rivera Santana
Director, Planning and
Environmental Protection

Enclosures

c EPA Caribbean Field Office (w/attach.)
EQB (w/attach.)
Phillip Sweeney (w/o attach.)
John Chang-Chen (w/attach.)

REPORT ON NEW PREPA CORROSION INHIBITOR

PREPA has entered into Consent Decrees with EPA regarding NPDES corrective actions to be undertaken at three of its power plants. The Consent Decrees are identified as follows: Order EPA-CWA-II-92-136 (Palo Seco NPDES No. PR0001031), Order EPA-CWA-II-92-145 (Aguirre NPDES No. PR0001660), and Order EPA-CWA-92-120 (South Coast NPDES No. PR0001147). PREPA also submitted a proposed order covering its San Juan Power Plant (NPDES No. PR0000698) on October 20, 1992. Pursuant to Ordered Provisions 8 (Palo Seco), 8 (Aguirre) and 4 (South Coast) of the above referenced Orders, PREPA is to complete an evaluation of alternative corrosion inhibitors for use in its cooling towers by February 28, 1993 for all three plants that are subject to Orders, to reduce the amount of priority pollutants contributed to its wastewater discharges from corrosion inhibitor chemicals. Although PREPA's October 20, 1992, proposed order for San Juan does not require a corrosion inhibitor evaluation, PREPA will nevertheless include San Juan in the program. PREPA has completed its evaluation and has selected a new corrosion inhibitor.

PREPA will cease using its old corrosion inhibitor at all plants except San Juan on February 28, 1993. At various points during the following week, PREPA will commence use of the new corrosion inhibitor for these plants. PREPA expects to commence use of the new corrosion inhibitor at San Juan by the end of March.

This letter is intended to provide EPA with all necessary notifications required under its NPDES Permits as a result of the switch to the new corrosion inhibitor. Since most of the notification requirements are contained in the NPDES permit boilerplate provisions, which are identical for all permits, PREPA will discuss each notification requirement with specific reference to the notification provisions contained in its NPDES Permit for Aguirre, NPDES Permit No. PR0001660, effective September 29, 1992.

In accordance with EPA's Pollution Prevention Strategy, PREPA has chose a corrosion inhibitor that contains no heavy metals. The corrosion inhibitor is called Calgon OC-427. It is a non-heavy metal liquid based on phosphorous chemistries. In response to PREPA's questionnaire, the manufacturer reported that under reasonable use conditions the product would not result in the discharge of measurable levels of any of the NPDES Permit Application Form 2C pollutants or any additional substances based on Puerto Rico Water Quality Standards or NPDES permit Notification levels. In fact, the product does not contain any of these pollutants. Nor does the product contain any of the Clean Water Act Section 311 hazardous substances. This questionnaire as well as a product description and the applicable Material Safety Data Sheets are attached.

Based on the above demonstration, PREPA does not need to notify EPA of any proposed use of any substance containing priority pollutants (note 3 of Part I, page 18 of 45, (of the Aguirre Permit) or of the discharge of any Part I.B.5 (of the Aguirre Permit) chemicals. PREPA notes that Part II.B.12 (of the Aguirre Permit) requires PREPA to notify EPA of any planned physical alterations or additions to the permitted facility which could significantly change the nature or increase the quantity of non-Part I.B.5 pollutants discharged. PREPA does not believe that use of the new corrosion inhibitor fits these notification criteria, but provides this information anyway.

REPORT OF THE RESULTS OF METHOD DETECTION LIMIT STUDIES
AND SURVEY OF COOLING TOWER CHEMICALS
PALO SECO POWER PLANT

JUNE, 1992

A. INTRODUCTION

As required by Ordered Provision 7 of draft Consent Order No. EPA-CWA-II-92-136, PREPA has determined alternative Method Detection Limit for PCBs at those discharge points at its Palo Seco Power Plant which have PCB limits in the Final Second Round Renewal NPDES permit (NPDES Permit PR0001031). As discussed in Section C below, prior to doing a MDL study for any priority pollutant contained in chemicals added for cooling tower maintenance (see 40 CFR §423.13(d)(1)), PREPA reviewed its MSDs for the cooling tower maintenance chemicals it utilized, and confirmed that none of these chemicals contained priority pollutants other than zinc. Because the "no detectable" priority pollutant permit limit applies only to discharges resulting from the use of cooling tower maintenance chemicals, no MDL study was necessary.

B. PCB MDL EVALUATION

PREPA generally does its NPDES permit compliance monitoring in-house, and routinely does PCB analyses in-house. Occasionally, however, PREPA elects to utilize a qualified outside laboratory to do its NPDES compliance monitoring. Because of this, PREPA had the MDL evaluations done, both by its internal laboratory and by its contract lab, Environmental Quality Laboratories (EQL). Attachment 1 contains the results of PREPA's evaluation, while Attachment 2 contains EQL's data and calculations. Table 1, below, summarizes the calculated MDL.

As explained in 40 CFR Appendix B,

The method detection limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

Thus, it is not surprising that the various calculated PCB MDLs for each outfall differed slightly because each represents a separate matrix. In addition, while the procedures set forth in 40 CFR 136 Appendix A for Method 608 were followed by both laboratories, Method 608 does contain some approved variations which can also lead to differences between the results achieved by each laboratory.

As can be seen by examining Table 1, EQL generally achieved a lower detection limit than the PREPA laboratory. This is most likely due to the fact that EQL utilizes both, an automatic gas concentrator and automatic sample injection, while the PREPA laboratory does these two steps manually. In addition, based on their respective experiences, both laboratories spiked at different concentrations. Because both laboratories' methods are in compliance with the 40 CFR Part 136, App. A-method 608 requirements (see §§ 10.4 and 12.4), both calculated MDLs are equally acceptable.

PREPA intends to rely primarily on its internal laboratory for the NPDES permit PCB compliance analyses. PREPA prefers to also have the option to utilize an outside laboratory, and hence, is also submitting MDL/UCL data for EQL. Thus most DMR data will be reported utilizing the PREPA MDLs, if analyses are done by EQL, that fact will be noted in the DMR coversheet, and the outfall-specific MDLs established by EQL will be utilized.

Because MDLs are derived statistically and the MDL at any particular time may vary slightly from the calculated MDL, Appendix B to 40 CFR Part 136 also sets out how the 95 percent confidence intervals for each calculated MDL are to be calculated (see App. B at § 6(b)). To account for this normal variation, the MDLs which EPA should approve (in accordance with Ordered Provision 7 of the draft Consent Order) should be the upper confidence limit of the calculated MDL. These values are included (in bold print) in Table 1.

C. COOLING TOWER CHEMICALS

PREPA has reviewed the list of chemicals it uses within its service water cooling towers at Palo Seco. Four chemicals are utilized:

1. Besst 224
2. Besst 221
3. Calcium Hypochlorite
4. Sulfuric Acid

MSDs for each of these four chemicals are included in Attachment 3. As a review of these MSDs indicates, the only priority pollutant contained in any of these chemicals is zinc (besst 224), which has a separate permit limit.

Based upon the above information and pursuant to 40 CFR §423.B(d)(1) and (3) (which is the categorical basis for the "no detectable" priority permit limit imposed on IMPs 001A2 and 001C1), PREPA requests that instead of monitoring to demonstrate compliance with this "no detectable amount" limit, it be able to document in

each DMR, that based upon an engineering evaluation (including calculations, if necessary), "the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR Part 136." (*Id.* at §423.13(d)(3).)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, NEW YORK 10278-0012

A E E
Page

JUL 22 1993

Division of Identification
and Compliance Assessment

A. E. E.
RECIBIDO

JUL 23 1993

5385
JEFE DE DIVISION
División Protección Ambiente
Confiableidad de Calidad

JUL 14 1993

Mr. Angel L. Rivera Santana
Director, Planning and
Environmental Protection
Puerto Rico Electric Power Authority
G.P.O. Box 4267
San Juan, Puerto Rico 00936-4267

Re: 126 Priority Pollutants and PCB MDL Evaluation
PR0001031, PR0001147, PR0001660

Dear Mr. Rivera:

This letter is in regard to reports of alternate Method Detection Limits (MDL) for Polychlorinated Biphenyl Compounds (PCBs) and "no detectable amount" 126 priority pollutants developed by the Puerto Rico Electric Power Authority (PREPA) for the Palo Seco, South Coast and Aguirre Power Plants, and submitted to the Environmental Protection Agency (EPA) for review.

Please be advised that EPA has reviewed the submitted reports and has accepted MDLs as follows:

Palo Seco Power Plant

Outfall	Aroclor	PREPA Laboratory MDL (ug/l)	EQ Laboratory MDL (ug/l)
001A1	(Falta sampler datos - EPA)		0.81
001A	1242	0.483 2.42	0.163
001A	1260	0.553 5.17	0.107
001B	1242	0.414 2.75	0.176
001B	1260	*0.150 1.72	*0.085
001C	1242	*0.524 2.09	*0.069
001C	1260	*0.530 9.08	0.255

South Coast Power Plant

Outfall	Aroclor	PREPA Laboratory MDL (ug/l)	EQ Laboratory MDL (ug/l)
001b	1242	1.058 4.0	0.264
001b	1260	1.454 25.3	*0.057
001c	1242	0.326 1.47	0.195
001c	1260	0.353	0.393
001f	1242	0.618 47.3	*0.013
001f	1260	1.432 22.7	*0.063

Adicionalmente
para que los
de EPA el V.
calculada la
MDL. EPA
esta grado
algunos ml
no los VCL
EPA no es el
la razon
no aceptan
aceptan alg
MDL,

Recomendar datos de EQ Lab,
pero no de PREPA. EPA
debe evaluar los de EQ Lab.

Harvan a Phil
Dunaway para
indicar antes de
someter cualquier

001e 001a3
001f 001a3

Aguirre Power Plant

<u>Outfall</u>	<u>Aroclor</u>	<u>PREPA Laboratory</u> <u>MDL (ug/l)</u>	<u>EQ Laboratory</u> <u>MDL (ug/l)</u>
001a	1242	1.041	0.129
001a	1260	0.643	* 0.088
002	1242	0.777	0.163
002	1260	1.005	* 0.082
003	1242	0.950	* 0.066
003	1260	1.078	0.179
003a	1242	0.526	* 0.047
003a	1260	1.800	* 0.072
004	1242	0.756	* 0.069
004	1260	1.252	0.095

* = MDL not valid

X For the calculated MDLs that are determined to be not valid, PREPA should re-submit reports to EPA for review.

With regard to the "no detectable amount" 126 priority pollutants limitations for the Palo Seco, South Coast and Aguirre power plants, we agree that compliance with the limitations may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR 136.

If you have any questions in this matter, please have your staff call Mr. Philip Sweeney, Chief of the Permits Management Section at (212) 264-2911.

Sincerely yours,

RF Vaughn

Robert F. Vaughn, Chief
Water Permits and Compliance Branch

cc: Lucinia Ghigliotty Irizarry, PREQB

* = MDL not valid.

Este asterisco no tiene sentido para algunas
resultados ya que un MDL menor de 0.065 ug/l
es el generalmente aceptado por EPA según su método
EPA deberá distinguirse en porque rechaza los resultados
de < 0.065 ppb y porque algunas > 0.065 ppb.

TABLE 1^{1/}
 CALCULATED MATRIX SPECIFIC PCB MDLs AND UCLs
 FOR THE PALO SECO POWER PLANT
 (JUNE 1992)

Outfall	PREPA				EQL			
	Arochlor ^{2/} MDL	1242 UCL ^{3/}	Arochlor MDL	1260 UCL ^{3/}	Arochlor MDL	1242 UCL ^{3/}	Arochlor MDL	1260 UCL ^{3/}
001A	0.483	1.063	0.553	1.217	0.163	0.359	0.107	0.235
001B	0.414	0.911	0.150	0.330	0.176	0.387	0.085	0.187
001C	0.524	1.153	0.539	1.186	0.069	0.152	0.255	0.561

^{1/} Based upon data provided in Attachments 1 and 2.

^{2/} These Arochlors are the most common arochlors that PREPA has found at its sites

^{3/} UCL=2.20 MDL (40 CFR Part 136, App. B, § 6 (b)).

TABLE 11/

CALCULATED MATRIX SPECIFIC PCB MDLs AND UCLs ($\mu\text{g/L}$)
FOR THE SOUTH COAST POWER PLANT
JUNE-JULY, 1992

OUTFALL	PREPA		AROCHLOR		EQL		AROCHLOR		1260	
	AROCHLOR ^{2/} MDL	1242 UCL ^{3/}	MDL	1260 UCL ^{3/}	AROCHLOR MDL	1242 UCL ^{3/}	MDL	1260 UCL ^{3/}	MDL	1260 UCL ^{3/}
001a1					0.069	0.152	0.047 ^{4/}		0.143 ^{4/}	
001a2					0.107	0.235	0.066		0.145	
001a3					0.024 ^{4/}	0.143 ^{4/}	0.047 ^{4/}		0.143 ^{4/}	
001b	1.058	2.328	1.454	3.199	0.264 ^{4/}	0.581	0.057 ^{4/}		0.143 ^{4/}	
001c	0.326	0.717	0.353	0.777	0.195	0.429	0.393		0.865	
001d					0.044 ^{4/}	0.143	0.072		0.158	
001e					0.031 ^{4/}	0.143 ^{4/}	0.060 ^{4/}		0.143 ^{4/}	
001f	0.618	1.360	1.432	3.150	0.013 ^{4/}	0.143 ^{4/}	0.063 ^{4/}		0.143 ^{4/}	

1/ Based upon data provided in Attachments 1 and 2.

2/ These Arochlors are the most common arochlors that PREPA has found at its sites

3/ UCL=2.20 MDL (40 CFR Part 136, App. B, ¶ 6 (b)).

4/ The calculated MDL is lower than the published MDL (0.065 $\mu\text{g/L}$).

The corresponding UCL is based upon the published MDL (as discussed in the text).

TABLE 1¹

CALCULATED MATRIX SPECIFIC PCB MDLS AND UCLS
FOR THE AGUIRRE POWER COMPLEX
(JUNE - AUGUST 1992)

OUTFALL	PREPA		AROCHOR 1260		AROCHOR 1242		AROCHOR 1260	
	AROCHLOR ² MDL	UCL ³	MDL	UCL ³	MDL	UCL ³	MDL	UCL ³
001a	1.041	2.290	0.643	1.415	0.129	0.284	0.088	0.194
002	0.777	1.709	1.005	2.211	0.163	0.359	0.082	0.180
003	0.950	2.090	1.078	2.372	0.066	0.145	0.179	0.394
003a	0.526	1.157	1.800	3.960	0.047	0.103	0.072	0.158
004	0.756	1.663	1.252	2.754	0.069	0.152	0.095	0.209

¹ Based upon data provided in Attachments 1 and 2.

² These Arochlors are the most common arochlors that Prepa has found at its sites.

³ UCL=2.20 MDL (40 CFR Part 136, App. B, 6 (b)).

COMMONWEALTH OF PUERTO RICO
PUERTO RICO ELECTRIC POWER AUTHORITY
SAN JUAN, PUERTO RICO



www.prepa.com

PO Box 364267
San Juan, Puerto Rico 00936-4267

August 19, 2003

Mr. Carlos E. O'Neill, Chief
Enforcement and Superfund Branch
United States Environmental Protection Division
Region II, Caribbean Environmental Protection Division
Europa Building, Suite 205-B
1492 Ponce de Leon Ave.
San Juan, PR 00907-4127

Dear Mr. O'Neill:

**Re: Puerto Rico Electric Power Authority (PREPA)
Notification to Use Chemicals for Cooling Tower Treatment**

Currently, PREPA uses ozone for biofouling control in the cooling water system. The ozone treatment effectiveness has not been enough to control the biofouling problems in the cooling towers at the power plants. Therefore, PREPA intends to use the following chemical products: ACTIBROM 7342, PermaTreat PC 510 and NALCO 71D5 PLUS from Ondo Nalco Corp, as a complementary treatment. The use of these products will solve operational problems with the auxiliary equipments that use service cooling water, specially during summer period.

According to 40 CFR Part 122, Subpart C, Section 122.41 (l) "*Reporting Requirement: (1) Planned Changes*", the permittee shall give notice to the director as soon as possible of any planned physical alteration or additions to the permitted facility when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharge. This notification apply to pollutants which are subject neither to effluents limitation in the permit, nor to notification requirements under section 122.42(a)(1)".

PREPA intends to use ozone with the addition of the ACTIBROM 7342 on a continuous basis. The PermaTreat PC 510 and Nalco 71D5 plus will be used on an intermittent basis.

PREPA evaluated each product with the following findings:

I. Continuous use Products:

1. Ozone

The active ingredient is *triatomic oxygen*. The Ozone appears listed in Table II in the *Toxic Chemical Release Inventory (TRI)*. Currently, PREPA use this product for the cooling tower treatment.

2. ACTIBROM 7342 CLORINE ENHANCER BIODISPERSANT

The active ingredient is **Sodium Bromide** (42.8 %). This ingredient did not appear in the following lists:

1. Part 116.4; Hazardous Substances tables A and B, designated as hazardous substances in accordance with section 311(b)(2)(A) of the Clean Water Act.
2. Part 401.15; Toxic Pollutants Table, designated as toxic pollutants in accordance with section 307(a)(1) of the Clean Water Act.

Despite that **Sodium Bromide** did not appear in the abovementioned lists, bromide is a parameter that is sampled and analyzed in the NPDES (*National Pollutant Discharge Elimination System*) outfalls, according to 40 CFR Part 122 Table IV Appendix D.

PREPA research showed that bromide is used for cooling water tower treatment in the electric and pharmaceutical industry at Puerto Rico. For example, Ecoelectric uses brominators and analyzed bromide as total residual chlorine (TRC), using the method SM4500CL-G.

II. Intermittent use products:

3. Perma Treat PC 510 ANTISCALANT

The active ingredients are **Sodium hydroxide y 2-phophono-1,2,4-butanetricarboxylic acid**.

Sodium hydroxide appears listed in 40 CFR Part 116.4 Tables A and B of *Hazardous Substance*. This designation includes isomers, hydrates of the substance, mix and solution containing the substance. Sodium hydroxide affects the pH in water. Currently, the pH parameter is regulated in PREPAs NPDES permits at all of the power plants.

4. **NALCO 71D5 PLUS** **ANTIFOAM**

The active ingredients are *Paraffin wax, Hydrotreated Light Distillate and Straight Run Middle Distillate*. According with the *MSDS*, these ingredients are insoluble in water. These ingredients did not appear in the following lists:

1. Part 116.4; Hazardous Substances tables A and B, designated as hazardous substances in accordance with section 311(b)(2)(A) of the Clean Water Act.
2. Part 401.15; Toxic Pollutants Table, designated as toxic pollutants in accordance with section 307(a)(1) of the Clean Water Act.

The Nalco 71D5 Plus ingredients are detectable by the oil and grease test. Currently, the oil and grease parameter is regulated in PREPA's *NPDES* permits at all the power plants.

The frequency and chemical dose of the proposed products will be as follows:

Chemicals	Frequency	Dosage Requirements
Ozone	Daily	5 to 10 pounds per day.
ACTIBROM 7342,	Daily	40 ppm in recirculating water
PermaTreat PC 510	Annual	51 to 313 ppm
NALCO 71D5 PLUS	Annual	0.1 to 1.0 ppm

The following table indicates the internal wastestreams and outfalls per power plant that receives the cooling tower blowdowns:

Power Plant	Cooling Tower	Internal Wastestream	Outfall
Aguirre	1 and 2	001b	001
	Combined Cycle Tower	004a	004
South Coast	1, 2, 3 and 4	001c	001
	5 and 6	001g	001
Palo Seco	1 and 2	001C1	001C
	3 and 4	001A2	001A
San Juan	7 and 8	001D	001
	9 and 10	001D	001

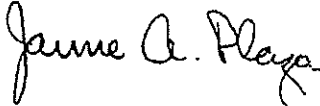
Mr. Carlos E. O'Neill
Notification to Use Chemicals for Cooling Tower Treatment
August 19, 2003
Page 4

Addendum 1 includes technical information of these chemical products in the biofouling control. Addendum 2 provides the Material Safety Data Sheets (MSDS) for those products presented by Ondeo Nalco Corp. PREPA will appreciate any effort to expedite this petition.

PREPA requests authorization from the Environmental Protection Agency (EPA) to use these products in the cooling tower system for all the power plants. Also, PREPA and Ondeo Nalco staff will be available to respond any concern regarding this request.

If there are any questions regarding this request, please contact Eng. Víctor DeCastro, Water Quality Department Acting Supervisor, at (787) 289-4964 or (787) 289-4965.

Cordially,



Jaime A. Plaza, Head
Environmental Protection and
Quality Assurance Division

Enclosure



VDC/RBS/MCS

- c. Gerardo Léctora
- Pedro Polanco
- Víctor de Castro Carlo
- Ruperto Berríos Santos
- Miguel Claudio Santiago

APPENDIX 3

DOCUMENTS RELATED TO EQB DETERMINATION
OF INTERIM MIXING ZONE

ID	Coordenada de		Coordenada de	
	ZM-IECCA	UTM Equivalente	ZM-PREPA	UTM Equivalente
1	N 17°56'5.02"	206263.2421	N 17°56'5.1"	206263.8677
	W 66°13'38.08"	1985034.325	W 66°13'38.1"	1985036.777
2	N 17°56'4.16"	206360.0182	N 17°56'4.1"	206357.6351
	W 66°13'41.38"	1985006.423	W 66°13'41.3"	1985004.612
3	N 17°56'7.37"	206388.2857	N 17°56'7.3"	206388.5481
	W 66°13'42.29"	1985104.762	W 66°13'42.3"	1985102.604
4	N 17°56'8.23"	206291.5101	N 17°56'8.3"	206294.7812
	W 66°13'38.99"	1985132.664	W 66°13'39.1"	1985134.769

Vector	Coordenada de	Coordenada de
	ZM-IECCA	Inspección (ZM-PREPA)
	Distancias (m)	
2 - 1	96.77616339	93.76738319
	27.90235111	32.1648174
3 - 2	28.26751486	30.91303782
	98.33937385	97.99226668
4 - 3	96.77567501	93.76691699
	27.90227818	32.16473272
1 - 3	28.26800323	30.91350402
	98.33930092	97.992182

Área de la Zona de Mezcla (m²):

2779.857738



LOCATION MAP
AGUIRRE POWER COMPLEX
EQB PROPOSED INTERIM MIXING ZONE
1:20.000





LOCATION MAP
AGUIRRE POWER COMPLEX
EQB PROPOSED INTERIM MIXING ZONE
1:3.000

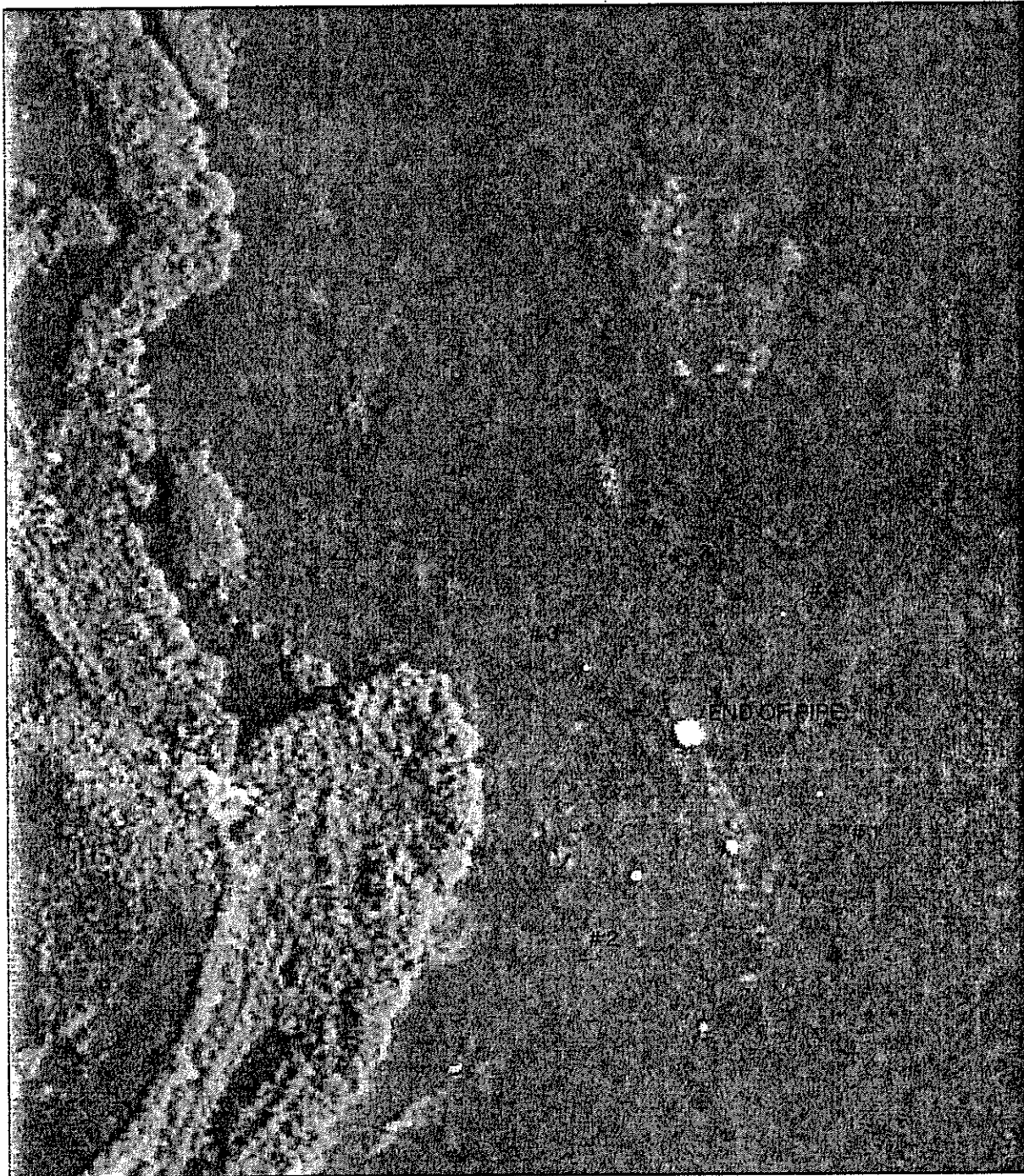


Exhibit B

SEPTEMBER 16, 2010 WATER QUALITY CERTIFICATE



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD



Governing Board

RETURN RECEIPT REQUESTED

September 16, 2010

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

Dear engineer Plaza:

**RE: WATER QUALITY CERTIFICATE
PUERTO RICO ELECTRIC POWER AUTHORITY
AGUIRRE POWER COMPLEX
STATE ROAD NO. 3 INT. 705
SALINAS, PUERTO RICO
NPDES NO. PR0001660**

We have received and reviewed the application for a permit under Section 402, National Pollutant Discharge Elimination System (NPDES), of the Federal Clean Water Act, as amended (33 U.S.C. 466 *et seq.*) (the Act) for the referenced facility.

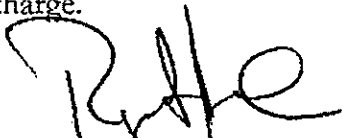
Pursuant to Section 401 (a) (1) of the Act, after due consideration of the applicable provisions established in the Puerto Rico Water Quality Standards Regulation (PRWQSR), as amended and in Sections 208(e), 301, 302, 303, 304(e), 306 and 307 of the Act, it is certified that there is reasonable assurance as determined by the Environmental Quality Board (EQB) that the alluded discharge will not cause violations to the applicable water quality standards at the receiving water body if the limitations and monitoring requirements in Tables A-1, A-2, A-3, A-4, A-5, A-6 and A-7 are met.

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

Eng. Jaime A. Plaza Velázquez
WQC Aguirre Power Complex
NPDES No. PR0001660
Page 2

If you have any objection to the Water Quality Certificate (WQC), you have the right to request reconsideration to the EQB within the statutory period (twenty (20) calendar days from the date that the WQC is received).


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



Mr. Reynaldo Matos Jiménez
Associate Member



Edwin A. Irizarry Lugo, Esq.
Vice Chairman



Pedro J. Nieves Miranda, Esq.
Chairman

LDS/dcc

c: Eng. Carl-Axel P. Soderberg, EPA-CEPD
Ms. Michelle Josilo, EPA 2

SPECIAL CONDITIONS

NPDES No. PR0001660

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

1. The flow of discharge 001, 002, 003 and 004 shall not exceed the limitation of 2.47×10^6 m³/day (652.0 MGD), 946.35 m³/day (0.25 MGD), 40,693.18 m³/day (10.75 MGD) and 151.42 m³/day (0.04 MGD) as daily maximum, respectively. No increase in flow of the aforementioned discharges shall be authorized without a recertification from the Puerto Rico Environmental Quality Board (EQB). ^{1,4,6}
2. The discharge 005 will only consist of waters composed entirely of storm water. ⁴
3. No toxic substances shall be discharged, in toxic concentrations, other than those allowed as specified in the NPDES permit. Those toxic substances included in the Permit Renewal Application, but not regulated by the permit, shall not exceed those concentrations as specified in the applicable regulatory limitations. ^{1,2}
4. The waters of Puerto Rico shall not contain any substance attributable to discharge 001, 002, 003, 004 and 005 at such concentration which, either alone or as a result of synergistic effect with other substances, is toxic or produces undesirable physiological responses in human, fish or other fauna or flora. ²
5. All sample collection, preservation, and analysis shall be carried out in accordance with the Title 40 of the Code of Federal Regulations (40 CFR) Part 136. A licensed chemist authorized to practice the profession in Puerto Rico shall certify all chemical analyses. All bacteriological tests shall be certified by a microbiologist or a medical technician licensed to practice the profession in Puerto Rico. ^{1,3}
6. The solid wastes (sludge, screenings and grit) generated due to the treatment system operation shall be:
 - a. After ninety (90) days of the Effective Date of the NPDES Permit (EDP) a report shall be submitted to EQB and EPA notifying the disposal method for the solid waste (sludge, screening and grit) generated due to the operation of the treatment system. The permittee will notify if any change of the method or methods used to dispose the solid waste generated in the facility occurs.
 - b. Transported adequately in such way that access is not gained to any body of water or soil. In the event of a spill of solid waste on land or into a body of water, the

permittee shall notify the Point Sources Permits Division of the EQB's Water Quality Area in the following manner:

- 1) By telephone communication within a term no longer than twenty four (24) hours after the spill (787-767-8073).
- 2) By letter, within a term no longer than five (5) days after the spill.

These notifications shall include the following information:

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

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

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

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

8. The sludge produced within the facility due to the operation of the treatment system shall be analyzed and all constituents shall be identified as required by "Standards for the Use or Disposal of Sewage Sludge" (40 CFR, Part 503). The sludge shall be disposed properly in such manner that water pollution or other adverse effects to surface waters or to ground water do not occur. ^{4,7}

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

16. The permittee shall comply at all times with the provisions, measures or practices included in the most recent version of the BMP Plan (Special Condition 16) approved by EQB. ⁴
17. WHEN FLOW OCCURS (WFO) ⁴

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

A. First Half of Month

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

B. Second Half of Month

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

C. General Requirements

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

Alternatively, if no samples are taken during the month, the permittee will be considered to have met its sampling requirement if the permittee certifies that it was not possible to meet the specified sampling protocol during the first fifteen (15) days of the month and that there was no appreciable discharge of storm water during normal business hours from the sixteenth (16th) day of the month to the last day of the month.

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

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

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

Geographic Coordinates

Point 1	Lat. 17° 55' 53.18" Long. 66° 13' 28.04"
Point 2	Lat. 17° 55' 49.08" Long. 66° 13' 43.77"
Point 3	Lat. 17° 56' 19.21" Long. 66° 13' 52.34"

Geographic Coordinates

Point 4 Lat. 17° 56' 23.31"
 Long. 66° 13' 36.60"

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

- b. The interim mixing zone sampling stations shall be located at the four (4) points described in Part "a" of this special condition.
- c. The background sampling station shall be located one hundred (100) meters from Point 3 or Point 4 of the mixing zone, depending of the current direction at the time of sampling. The petitioner shall determine and submit to FQB the geographic coordinates of both background stations.
- d. The permittee shall maintain records of the equipment used to situate at the mixing zone boundaries. Such records shall include the date when the equipment was obtained or leased, calibration date, serial number, model, etc.

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

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

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

<u>Parameter</u>	<u>Daily Maximum Discharge Limitation at Outfall Serial Number 001</u>	<u>Daily Maximum Limitation at the Edge of the IMZ</u>
Temperature (°C)	41.1	32.2

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

verify compliance with the applicable provisions of the PRWQSR and a dye study to validate the mathematical model used to determine the critical initial dilution and verify the behavior of the plume within the mixing zone. The monitoring program shall be conducted as follows:

1. The permittee shall conduct four (4) sampling events at the four (4) stations at the boundaries of the IMZ, at the background sampling station and at the sampling point of discharge 001, during two seasons (summer and winter). Two sampling events shall be conducted during each season.
 2. The dye study shall be conducted twice, one event during each season, the same time as one of the sampling events of the season.
- n. The monitoring program shall commence ninety (90) days after the written approval of the corresponding Protocol and Quality Assurance Project Plan (QAPP). Such Protocol and QAPP shall be submitted to EQB ninety (90) days after the EDP.
- o. If the mathematical model is validated as established in the applicable provisions of the PRWQSR and in the Mixing Zone and Bioassays Guidelines, a final mixing zone authorization will be issued by EQB. Nevertheless, if the mathematical model is not validated, the EQB may revoke the IMZ authorization in accordance with Article 5.14 of the PRWQSR. In such case, the permittee must submit a compliance plan according to Article 5.16 of the PRWQSR.
- p. The EQB can allow that the permittee use alternative methods for the mixing zone validation if such methods comply with the applicable federal and state regulations or when new technology is developed that produce results technically and environmentally more reliable than those produced by the methods described in this special condition.
- q. The EQB will determine if the effluent limitations will be final or if it is necessary to reopen the WQC to modify (increase or decrease) the effluent limitation for the aforementioned parameter after the revision of the results obtained in the studies required in this special condition.

- r. The authorization for the mixing zone will not be transferable and does not convey any property rights of any sort or any exclusive privileges, nor it authorizes any injury to persons or property or invasion of other private rights, or any infringement of Federal or State laws or regulations.
24. The permittee shall conduct semiannual definitive acute and chronic toxicity tests using the organisms Mysidopsis bahia, Cyprinodon variegatus and Arbacia punctulata for the wastewater discharges identified as 001, 002, 003 and 004.
- a. Thirty (30) days from the EDP, the permittee shall submit, for evaluation and approval by EQB, a protocol to conduct such toxicity tests.

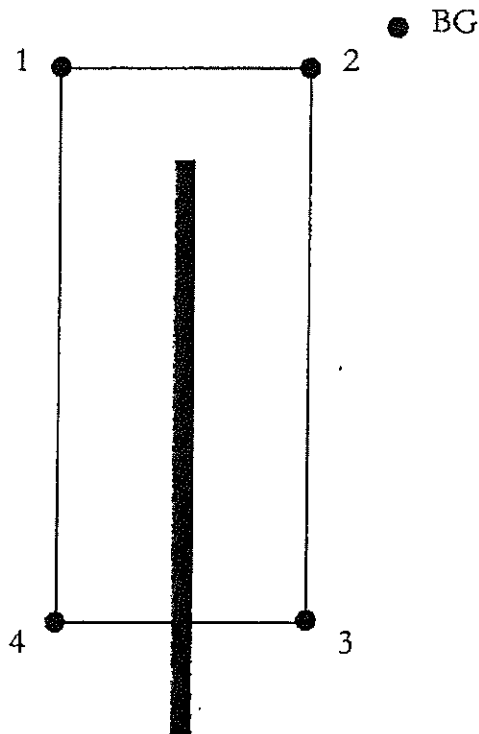
Such protocol shall include, but will not be limited to:

1. An identification of the organizations responsible for conducting the tests, including a full description of the laboratory capabilities and personnel expertise and the species to be tested.
 2. A detailed description of the methodology to be utilized in the conduct of the tests, including equipment, sample collection, dilution water and source of test organisms.
 3. A schematic diagram which depicts the effluent sampling location in relation to the wastewater treatment facility and discharge point 001.
- b. The toxicity tests shall be conducted semiannually beginning not later than one hundred eighty (180) days from the EDP, for a one (1) year period, after which the tests will be conducted annually.
- c. The toxicity tests shall be conducted according to the most recent editions of the following publications of the EPA:
1. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (EPA-821-R-02-012), Fifth Edition, October 2002, or the most recent edition of this publication, if such edition is available.
 2. Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms (EPA-821-R-02-013), Fourth Edition, October 2002, or the most recent edition of this publication, if such edition is available.

- d. The procedures, methods, techniques, conditions, etc., included in the above mentioned publications shall be followed at all times. If the permittee determines to use other procedures, methods, etc., because the permittee understands that:
1. by the nature or conditions of this case is impossible to follow such publications;
 2. other procedures, methods, etc., are adequate,
- then, the permittee shall, prior to the utilization of other procedures, methods, etc., obtain the written approval from the EPA and EQB.
- e. The effluent samples for the toxicity tests shall be used in or before 36 hours after being collected.
- f. A report on the toxicity tests conducted shall be submitted to the EQB, during the sixty (60) days period after the tests were conducted. This report shall be prepared according to the aforementioned publications of EPA.
- g. Based on the review of the test results, the EQB can require additional toxicity tests, including toxicity/treatability studies and can revoke the interim or final mixing zone authorization according with Section 5.14 of the PRWQSR.
25. The conditions of this WQC are considered as separate. Therefore, if the applicability of any condition of this WQC is stayed due to any circumstance, the remaining conditions of this WQC will not be affected. ⁶
26. The EQB, by the issuance of the WQC, does not relieve the applicant from its responsibility to obtain additional permits or authorizations from the EQB as required by law. The issuance of the WQC shall not be construed as an authorization to conduct activities not specifically covered in the WQC, which will cause water pollution as defined by the PRWQSR. ⁶

DIAGRAM-I

Aguirre Power Complex Mixing Zone



Geographic Coordinates

Point 1	Lat. 17° 55' 53.18" Long. 66° 13' 28.04"
Point 2	Lat. 17° 55' 49.08" Long. 66° 13' 43.77"
Point 3	Lat. 17° 56' 19.21" Long. 66° 13' 52.34"
Point 4	Lat. 17° 56' 23.31" Long. 66° 13' 36.60"

1. According to Rule 1301, Puerto Rico Water Quality Standards Regulation as Amended.
2. According to Rule 1303, Puerto Rico Water Quality Standards Regulation as Amended.
3. According to Rule 1305, Puerto Rico Water Quality Standards Regulation as Amended.
4. According to Rule 1306, Puerto Rico Water Quality Standards Regulation as Amended.
5. According to Rule 1308, Puerto Rico Water Quality Standards Regulation as Amended.
6. According to the Environmental Public Policy Act of September 22, 2004, Act No. 416, effective since March 22, 2005.
7. According to the Section 405 (d)(4) of the Federal Clean Water Act as Amended (33 U.S.C. 466 *et seq.*).
8. According to the Code of Federal Regulation Number 40 (40 CFR), Part 131.40, as amended (Federal Register/Volume 69, No. 16/Monday, January 26, 2004).

TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS NPDES NO. PR0001660

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

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Measurements Frequency</u>	<u>Sample Type</u>
Color (Pt-Co Units) β ^{2,3}	Shall not be altered except by natural causes.		ϵ	Grab
Dissolved Oxygen (mg/L) ^{1,2,3}	Shall not contain less than 5.0.		Weekly	Grab
Flow m ³ /day (MGD) ^{3,4}		2.47 x 10 ⁶ (652.0)*	Daily	Estimate
Oil and Grease (mg/L) ^{2,3}		----	ϕ	Grab
pH (SU) ^{2,3}	Shall always lie between 7.3 and 8.5.		Daily	Grab
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.		----	----
Suspended, Colloidal or Settleable Solids (mL/L) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		Daily	Grab
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----
Temperature °F (°C) ^{2,3}		105.98 (41.1)	Daily	Grab

TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type

Special Conditions See attached sheet, which contains special conditions that constitute part of this certification. ----

Notes:

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

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

ε The permittee shall implement a monthly monitoring program using the analytical method approved by EPA with the lowest possible detection level, in accordance with Rule 1306.2 (C) of the PRWQSR, as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the EIDP. The results of the monitoring program shall be submitted to EQB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if more frequent monitoring is necessary for this parameter. In such case the WQC will be reopened to include the applicable effluent limitation.

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

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 Rule 1306.2 (C) of the PRWQSR as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the EIDP. The results of the monitoring program shall be submitted to EQB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if an effluent limitation is necessary for this parameter. In such case the WQC will be reopened to include the applicable effluent limitation.

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

**TABLE A-2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS NPDES NO. PR0001660
AT THE EDGE OF THE MIXING ZONE**

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

Receiving Waters Name and Classification: Bahía de Jobos, SB

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

Notes:

α See Special Condition 24.

λ See Special Condition 24.m.

2, 3 and 4 see page 12 of Special Conditions

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

Receiving Waters Name and Classification: Bahía de Jobos, SB

Effluent Characteristics

Monitoring Requirements	
Measurements	Sample
Frequency	Type

Temperature °F (°C) ^{2,3,4}

λ λ Grab

Notes: _____

λ Sec Special Condition 24.m.

1, 2, 3 and 4 see page 12 of Special Condition

TABLE A-4

EFFLUENT LIMITATIONS AND MONITORING
REQUIREMENTS

NPDES NO. PR0001660

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

Receiving Water Name and Classification: Bahía de Jobos, SB

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

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the use of primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----
Temperature °F (°C) ^{2,3}	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90°F (32.2°C).		Daily	Grab
Turbidity (NTU) ^{2,3}	10		Monthly	Grab
Special Conditions	See attached sheet, which contains special conditions that constitute part of this certification.		----	----

Notes:

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

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

ϵ The permittee shall implement a monthly monitoring program using the analytical method approved by EPA with the lowest possible detection level, in accordance with Rule 1306.2 (C) of the PRWQSR, as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the LDP. The results of the monitoring program shall be submitted to FQCB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if more frequent monitoring is necessary this parameter. In such case the WQC will be reopened revise the monitoring frequency.

Receiving Water Name and Classification: Bahia de Jobos, SB

- * The daily maximum flow limitation does not consider the stormwater discharged through discharge point 002.
- 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 Rule 1306.2 (C) of the PRWQSR as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the EDP. The results of the monitoring program shall be submitted to EQB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if an effluent limitation is necessary for this parameter. In such case the WQC will be reopened to include the applicable effluent limitation.

1, 2, 3 and 4 see page 12 of the Special Conditions.

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

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
BOD ₅ (mg/L) ^{1,2,3}		30.0	Annually	Grab
Color (Pt-Co Units) ^{2,3}	Shall not be altered except by natural causes.			
Dissolved Oxygen (mg/L) ^{1,2,3}	Shall not contain less than 5.0.			
Flow m ³ /day (MGD) ^{3,4}	40,693.18 (10.75)*			
Oil and Grease (mg/L) ^{2,3}	---	---	φ	Grab
pH (SU) ^{2,3}	Shall always lie between 7.3 and 8.5.			
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.			
Suspended, Colloidal or Settleable Solids (ml./l.) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.			

Receiving Water Name and Classification: Bahía de Jobos, SB

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

Notes:

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

- β Color shall be monitored at the effluent and the receiving water body.
- ϵ The permittee shall implement a monthly monitoring program using the analytical method approved by EPA with the lowest possible detection level, in accordance with Rule 1306.2 (C) of the PRWQSR, as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the FDP. The results of the monitoring program shall be submitted to EQB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if more frequent monitoring is necessary this parameter. In such case the WQC will be reopened revise the monitoring frequency.

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

Receiving Water Name and Classification: Bahía de Jobos, SB

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 Rule 1306.2 (C) of the PRWQSR as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the FDP. The results of the monitoring program shall be submitted to EQB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if an effluent limitation is necessary for this parameter. In such case the WQC will be reopened to include the applicable effluent limitation.

1, 2, 3 and 4 see page 12 of the Special Conditions.

TABLE A-6

EFFLUENT LIMITATIONS AND MONITORING
REQUIREMENTS

NPDES NO. PR0001660

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

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
BOD ₅ (mg/L) ^{1,2,3}		30.0	Annually	Grab
Color (Pt-Co Units) ^{2,3}	Shall not be altered except by natural causes.		ε	Grab
Dissolved Oxygen (mg/l) ^{1,2,3}	Shall not contain less than 5.0.		Weekly	Grab
Flow m ³ /day (MGD) ^{3,4}		151.42 (0.04)*	Continuous Recording	
Oil and Grease (mg/L) ^{2,3}	---	---	φ	Grab
Pentachlorophenol (μg/l) ^{2,3}		---	γ	Grab
pH (SU) ^{2,3}	Shall always lie between 7.3 and 8.5.		Daily	Grab
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.			

TABLE A-6

EFFLUENT LIMITATIONS AND MONITORING
REQUIREMENTS

NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u> Measurements	<u>Sample Type</u>
	Monthly Average	Daily Maximum		
Suspended, Colloidal or Settlicable Solids (mL/L) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		Daily	Grab
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the use of primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----
Temperature °F (°C) ^{2,3}	Except by natural causes, no heat may be added to the waters of Puerto Rico, which would cause the temperature of any site to exceed 90°F (32.2°C).		Daily	Grab
Turbidity (NTU) ^{2,3}	10		Monthly	Grab
Zinc (Zn) (µg/L) ^{2,3}	85.62		Monthly	Grab
Special Conditions	See attached sheet, which contains special conditions that constitute part of this certification.		----	----

Notes:

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

Receiving Water Name and Classification: Bahía de Jobos, SB

- β Color shall be monitored at the effluent and the receiving water body.
- ε The permittee shall implement a monthly monitoring program using the analytical method approved by EPA with the lowest possible detection level, in accordance with Rule 1306.2 (C) of the PRWQSR, as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the EDP. The results of the monitoring program shall be submitted to EQB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if more frequent monitoring is necessary this parameter. In such case the WQC will be reopened revise the monitoring frequency.
- * The daily maximum flow limitation does not consider the stormwater discharged through discharge point 004.
- 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 Rule 1306.2 (C) of the PRWQSR as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the EDP. The results of the monitoring program shall be submitted to EQB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if an effluent limitation is necessary for this parameter. In such case the WQC will be reopened to include the applicable effluent limitation.
- γ The permittee shall implement a monthly monitoring program using the analytical method approved by EPA with the lowest possible detection level, in accordance with Rule 1306.2 (C) of the PRWQSR, as amended, for one (1) year period, after which they will be conducted annually. The monitoring program shall commence no later than thirty (30) days after the EQB's written approval of the Quality Assurance Project Plan (QAPP). The QAPP must be submitted for evaluation and approval of EQB no later than thirty (30) days after the EDP. The results of the monitoring program shall be submitted to EQB and EPA-Region 2 no later than sixty (60) days of completion of the one year monitoring program. Based on the evaluation of the results obtained, EQB will determine if an effluent limitation is necessary for this parameter. In such case the WQC will be reopened to include the applicable effluent limitation.

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

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Monthly Average	Daily Maximum	Measurements Frequency	Sample Type
Flow m ³ /day (MGD) ^{3,4}		N/A	WFO	Estimated
Oil and Grease (mg/l.) ^{2,3}	The waters of Puerto Rico shall be substantially free from floating non-petroleum oils and greases as well as petroleum derived oils and greases.			
pH (SU) ^{2,3}		----	WFO	Grab
Solids and Other Matter ^{2,3}	The waters of Puerto Rico shall not contain floating debris, scum or other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious to the existing or designated uses of the water body.			
Suspended, Colloidal or Settleable Solids (mL/L) ^{1,2,3}	Solids from wastewater source shall not cause deposition in or be deleterious to the existing or designated uses of the waters.		WFO	Grab
Taste and Odor Producing Substances ^{2,3}	Shall not be present in amounts that will interfere with the primary contact recreation, or will render any undesirable taste or odor to edible aquatic life.		----	----

TABLE A-7

EFFLUENT LIMITATIONS AND MONITORING
REQUIREMENTS

NPDES NO. PR0001660

Receiving Water Name and Classification: Bahía de Jobos, SB

<u>Effluent Characteristics</u>	<u>Gross Discharge Limitations</u>		<u>Monitoring Requirements</u> Measurements Frequency	<u>Sample Type</u>
	Monthly Average	Daily Maximum		
Temperature °F (°C) 23			WFO	Grab
Special Conditions	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).			
	See attached sheet, which contains special conditions that constitute part of this certification.			

Notes:

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

N/A Not applicable.

WFO See Special Condition 18.

1, 2, 3 and 4 see page 12 of the Special Conditions.

**Clarification on Water Quality Certificate
Aguirre Power Complex
NPDES Permit Nom. PR0001660
October 2010**

Puerto Rico Electric Power Authority (PREPA) wants to clear the following comments regarding the Final Water Quality Certificate (WQC) issued and delivered hand to hand by the Environmental Quality Board (EQB) to PREPA on September 17, 2010.

A. Water Quality Area - EQB's Response Letter:

- 1.) This letter makes reference to PREPA as Puerto Rico Energy Power Authority instead of Puerto Rico Electric Power Authority that is the correct name.

B. Water Quality Certificate:

1. Table A-2 - Outfall 001 (Temperature):

Interim Mixing Zone (IMZ) monitoring stations for Temperature: PREPA understands that EQB by a typo error used the Greek letters α and λ making reference to Special Conditions 24 and 24m respectively instead of 23 and 23m respectively. Note: Special Condition 24m does not exist.

2. Table A-3 - Outfall 001 (Temperature):

IMZ background monitoring stations for Temperature: PREPA understands that EQB by a typo error used the Greek letter λ making reference to Special Condition 24m instead of 23m.

3. Table A-6 – Outfall 004:

Pentachlorophenol: In Spanish version this parameter has the Greek letter γ but in the footnotes has the Greek letter λ .

Exhibit C

EXCERPTS FROM THE CURRENT APPC NPDES PERMIT, RELATED WATER QUALITY CERTIFICATE PAGES¹ and FACT SHEET PAGES

¹ PREPA is checking its records to verify that the February 26, 1990 version of the Water Quality Certificate is the final version with respect to the 1991/1996 NPDES permit. It filed a petition for reconsideration of this WQC with EQB in 1990, but could not locate a revised WQC in its files in time to include it with this petition. Excerpts from the correct WQC will be included with the updated Petition and Brief if one is filed.

Excerpts From
COMPLETE PERMIT 3/1/91 EFFECTIVE DATE
WITH 5/1/96 CHANGES

NPDES PERMIT NO. PR0001660

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, 33 U.S.C. §1251 et. seq. (the "Act"),

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

hereinafter referred to as "the permittee" is authorized to discharge from a facility located at

PREPA - Aguirre Power Plant
State Road No. 3, Int. 705,
Km. 30.5, Aguirre Seco Ward
Salinas, Puerto Rico

to receiving water named Jobos Bay

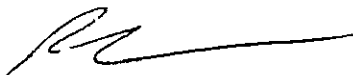
in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I and II hereof. All references to Title 40 of the Code of Federal Regulations are to regulations that are in effect on the effective date of this permit, including all amendments thereto published in the Federal Register. Unless otherwise specified herein, all terms are defined as provided in the applicable regulations under Title 40 of the Code of Federal Regulations.

This permit became effective on March 1, 1992.

This permit modification shall become effective on May 1, 1996.

This permit and the authorization to discharge shall expire at midnight, February 28, 1997.

Signed this 1 day of April 1996



Richard L. Caspe
Director
Water Management Division
U.S. Environmental Protection Agency

5/1/96

TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning May 1, 1996 and lasting through February 28, 1997 the permittee is authorized to discharge from outfall serial number 001 (Condenser cooling water, service water, cooling tower blowdown, sea water cooling tower blowdown and make-up sea water). Such discharge shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u> kgs/day (lbs/day) other units (specified) Daily Avg. Daily Max. Daily Avg. Daily Max.	<u>Monitoring Requirements</u> Measurement Sample Frequency Type
Flow (MGD) 1,5	656.0	Estimate**
+BOD5 (ug/l) 1,2,3	45,000.0	1/year Composite
+Dissolved Oxygen (ug/l) 1,2	Shall not contain less than 4,000	Weekly Grab
pH (SU) 1,2	Shall always lie between 7.3 - 8.5	Daily Grab
+Oil & Grease (ug/l) 1,2,3	15000.0	Twice per Month Grab
Temperature °F (°C) 1,2*	The discharge temperature shall not exceed 106°F (41.1°C). No heat be added to the water of Puerto Rico which cause the temperature of any site to exceed 106°F (41.1°C). For the receiving water, the rate of temperature change shall not be more than 1°F per hour and shall not exceed a total of 5°F in any 24 hr. period except when due to natural causes.	Daily Grab

* See page 29 for compliance schedule.

** See Special Condition No. 23.

TABLE A-1 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont.)

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>
	kgs/day (lbs/day) Daily Avg.	other units (specified) Daily Avg. Daily Max.	
+Cadmium (Cd) (ug/l) 1,2		5.0	2/Month Grab
+Iron (Fe) (ug/l) 1,2		200.0	2/Month Grab
+Lead (Pb) (ug/l) 1,2		15.0	2/Month Grab
+Silver (Ag) (ug/l) 1,2		2.0	2/Month Grab
+Zinc (Zn) (ug/l) 1,2		50.0	2/Month Grab
+Copper (Cu) (ug/l) 1,2		50.0	Monthly Grab

1,2 see page 25

5/1/96

TABLE A-2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS:

During the period beginning May 1, 1996 and lasting through February 28, 1997 the permittee is authorized to discharge from outfall serial number 002 (trap, floor and equipment drains, boiler blowdown, and storm water runoff). Such discharge shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u> kgs/day (lbs/day) other units (specified) Daily Avg. Daily Max. Daily Avg. Daily Max.	<u>Monitoring Requirements</u> Measurement Frequency Sample Type
Flow m ³ /day (MGD) 1,5		
BOD5 (ug/l) 1,2,3	45,000.0	1/year Composite
Dissolved Oxygen (ug/l) 1,2	Shall not contain less than 4,000	Weekly Grab
pH (SU) 1,2	Shall always lie between 7.3 - 8.5	Daily Grab
Oil & Grease (ug/l) 1,2,3	15000.0 20000.0	Twice per Month Grab
Temperature °F (°C) 1,2	No heat be added to the water of Puerto Rico which would cause the temperature of any site to exceed 94°F (34.5°C). For the receiving water, the rate of temperature change shall not be more than 1°F per hour and shall not exceed a total of 5°F in any 24 hr. period except when due to natural causes.	Daily Grab
Total Suspended Solids (ug/l)	30,000.0 100,000.0	Monthly Composite

1,2,3,4,5 see page 25

5/1/96

1/96

TABLE A-2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont)

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>
	kgg/day (lbs/day)	other units (specified)	
	Daily Avg.	Daily Max. Daily Avg. Daily Max.	Measurement Frequency Sample Type
Silver (Ag) (ug/l) 1,2		2.0	2/months Grab
Cadmium (Cd) (ug/l) 1,2		5.0	2/months Grab
Iron (Fe) (ug/l) 1,2		200.0	2/months Grab
Lead (Pb) (ug/l) 1,2		15.0	2/months Grab
Mercury (Hg) (ug/l) 1,2		1.0	2/months Grab
Polychlorinated Biphenyl		(a)	Quarterly (b) Grab
Chemical Oxygen Demand (mg/l)		100.0 (c)	monthly Composite

(a) There shall be no discharge of Polychlorinated Biphenyl compounds such as those commonly used for transformer fluids. Compliance shall be demonstrated by a "non-detectable" or "less than" value at the Method Detection Limit (MDL) using EPA approved Method 608 in accordance with EPA approved test procedures as specified in 40 CFR Part 136.

(b) Required twelve (12) months of monitoring starting from EDP, after the date, EPA may modify monitoring requirement upon permittee's request.

(c) Wet weather limit. Limitation apply when stormwater runoff bleeds into oil separator tank. In order to allow application of proper wet weather limit, the permittee must maintain a log which documents when stormwater runoff bleeds into the oil separator tank.

TABLE A-2 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont)

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	kgs/day (lbs/day)	other units (specified)	Measurement Frequency	Sample Type
Floating Solids and Visible Foam 1,2	Daily Avg. Daily Max.	Daily Avg. Daily Max.	--	--
Taste and Odor-producing Substances 1,2	The waters of Puerto Rico shall not contain floating debris, scum and other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious. None in amounts that will interfere with the use for potable water supply, or will render any undesirable taste and/or odor to edible aquatic life.			

1,2,3,4 see page 25

To comply with the monitoring requirements specified above, samples shall be taken at the outfall of discharge serial number 002.

All flow measurements shall achieve accuracy within the range of $\pm 10\%$.

TABLE A-3 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning May 1, 1996 and lasting through February 28, 1997 the permittee is authorized to discharge from outfall serial number 003 (condenser screen washwater, treatment plant effluent and stormwater runoff). Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u> kgs/day(lbs/day) other units(specified) Daily Avg. Daily Max. Daily Avg. Daily Max.	<u>Monitoring Requirements</u> Measurement Sample Frequency Type Continuous Recording
Flow m ³ /day (MCD) 1,5		
BOD5 (ug/l) 1,2,3	45,000.0	1/year Composite
Dissolved Oxygen (ug/l) 1,2	Shall not contain less than 4,000	Weekly Grab
pH (SU) 1,2	Shall always lie between 7.3 - 8.5	Daily Grab
*Oil & Grease (ug/l) 1,2,3	15000.0 20000.0	2/Month Grab
Temperature °F (°C) 1,2	No heat be added to the water of Puerto Rico which would cause the temperature of any site to exceed 94°F (34.5°C). For the receiving water, the rate of temperature change shall not be more than 1°F per hour and shall not exceed a total of 5°F in any 24 hr. period except when due to natural causes.	Daily Grab
*Turbidity (NTU) 1,2	10.0	Monthly Grab
Total Suspended Solids (mg/l)	30.0 100.0	Monthly Composite
*Chromium Total (Cr) (ug/l) 1,2	300.0	Monthly Grab
*Copper (Cu) (ug/l) 1,2	50.0	Monthly Grab
*Iron (ug/l) 1,2	200.0	Monthly Grab

* Net Limitation = Difference between measurement of samples taken in the inlet and the measurement of samples taken at compliance point 003. However, if the applicable Water Quality Standard (WQS) is exceeded on the inlet, the same measurement shall be achieved at compliance point 003. If the applicable WQS is not exceeded in the inlet the applicable WQS shall not be exceeded at compliance point 003.

5/1/96

TABLE A-4 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning May 1, 1996 and lasting through February 28, 1997 the permittee is authorized to discharge from outfall serial number 004 (steam generators blowdown, floor and equipment drain, cooling tower blowdown, fuel waste treatment plant effluent, and storm water runoff). Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u> kgs/day (lbs/day) other units (specified) Daily Avg. Daily Max. Daily Avg. Daily Max.	<u>Monitoring Requirements</u> Measurement Frequency Sample Type
Flow m ³ /day (MGD) 1,5		Continuous Recording
BOD5 (ug/l) 1,2,3	45,000	1/year Composite
Dissolved Oxygen (ug/l) 1,2	Shall not contain less than 4,000	Weekly Grab
pH (SU) 1,2	Shall always lie between 7.3 - 8.5	Daily Grab
Oil & Grease (ug/l) 1,2,3	15000.0 20000.0	2/Month Grab
Temperature °F (°C) 1,2	No heat be added to the water of Puerto Rico which would cause the temperature of any site to exceed 94°F (34.5°C). For the receiving water, the rate of temperature change shall not be more than 1°F per hour and shall not exceed a total of 5°F in any 24 hr. period except when due to natural causes.	Daily Grab

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TABLE A-4 EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont)

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>
	lbs/day (lbs/day) Daily Avg.	other units (specified) Daily Avg. Daily Max.	
Total Suspended Solids (ug/l)	30,000.0	100,000.0	Monthly Composite
Chemical Oxygen Demand (ug/l)		100,000.0	Monthly Composite
Lead (Pb) (ug/l) 1,2		15.0	2/Months Grab
Mercury (Hg) (ug/l) 1,2		1.0	Monthly Grab
Silver (Ag) (ug/l) 1,2		2.0	Monthly Grab
Zinc (Zn) (ug/l) 1,2		50.0	2/Months Grab
Cyanide (Cn) (ug/l) 1,2		20.0	Monthly Grab
Cadmium (Cd) (ug/l) 1,2		5.0	2/Month Grab
Phenolic Substances (ug/l) 1,2		10.0	2/Months Grab

1,2 see page 25

5/1/96

1. According to Article 5, Water Quality Standard Regulation and Amendments.
2. According to Article 5, Water Quality Standards Regulation and Amendments.
3. According to Article 5, Water Quality Standards Regulation and Amendments.
4. According to the Public Policy Environmental Act of June 18, 1970, as Amended, Act No. 9, 12 LPRA SS, 1131 Et. Seq.
5. According to the Public Policy Environmental Act of June 18, 1970, as Amended, Act No. 9, 12 LPRA SS, 1121-1142 Et. Seq.
6. According to the Comprehensive Water Quality Management plan for Puerto Rico, 1970-2020.
7. According to the Environmental Protection Agency Pretreatment Standards (40 CFR 403, June 26, 1978, effective August 25, 1978, as Amended).

SPECIAL REOPENER

Certain effluent limitations are included in the permit based on the Antibacksliding provisions of the Clean Water Act (CWA). The permittee must meet these requirements since one of the Section 402 (0) (2) Exceptions to the Antibacksliding provisions does not apply to this discharge. If, at any time during the permit term, one of the Exceptions under 402 (0) (1) \303(d) (4) or Section 402 (0) (2) were applicable through a demonstration by the permittee, the permittee could petition EPA for permit modification to relax or remove permit limitations if allowable under the Antibacksliding provisions of the CWA and other federal requirements.

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION II
26 Federal Plaza
New York, New York 10278

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

NPDES Application No. PR0001660

Name and Address of Applicant:

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

Name and Address of Facility
where Discharge Occurs:

PREPA - Aguirre Power Plant
State Road No. 3, Int. 705,
Km. 30.5, Aguirre Seco Ward
Salinas, Puerto Rico

Receiving Water: Jobos Bay

Classification: SC

I. LOCATION OF DISCHARGE

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

<u>Discharge</u>	<u>Latitude</u>	<u>Longitude</u>
001	17°57'09"	66°13'41"
002	17°57'09"	66°13'40"
003	17°57'03"	66°13'48"
004	17°56'58"	66°13'58"

A map showing the location of the facility is found in Attachment I, and facility diagram showing internal monitoring points is found in Attachment IA.

II. DESCRIPTION OF APPLICANT'S FACILITY AND DISCHARGE

The applicant generates electric power using two oil-fired turbine generators, two oil-fired steam electric units and two combined cycle units comprised of four gas turbines and one steam turbine per unit (SIC 4911). A description of

ATTACHMENT III

DESCRIPTION OF LIMITATIONS AND CONDITIONS

The effluent limitations, monitoring requirements, and other conditions of this permit are described in the draft permit. The effluent limitations in the permit are equivalent to the applicable technology-based guidelines for the Steam Electric Power Generating Point Source Category (40 CFR Part 423) and EPA Region II Guidance for stormwater runoffs based on Best Professional Judgement (BPJ) or water quality-based limitations.

OUTFALL 001: Condenser cooling water, cooling water blowdown, [TABLE A-1] waste treatment plant, cooling tower blowdown, thermoelectric units services, basin cleaning wastewater, cooling tower continuous overflow.

BOD5 -The daily maximum limitation is based on the more stringent previous permit limitation rather than the WQC dated February 12, 1990, to comply with the anti-backsliding provisions (402(o)) of the Clean Water Act (CWA).

Polychlorinated Biphenyls

PCBs - This limitation is based upon the Steam Electric Power Generating Point Source Category 40 CFR §423.13(a).

The water quality-based limitations in the existing permit for Color, Turbidity, Nitrogen, Settleable Solids, and Hexavalent Chromium for outfall 001 have been included in a special monitoring program as required by the WQC. There is insufficient information available to determine if there is a reasonable potential to cause an excursion of water quality criteria, and therefore if a permit limitation is necessary. This action will not result in any reduced level of treatment for these parameters.

All other effluent limitations of parameters and monitoring requirements listed in Table A-1 and all special conditions are equivalent to those imposed in the WQC issued by the EQB dated February 12, 1990.

The water quality-based limitations in the existing permit for Total Coliform, Fecal Coliform, Sulfate, Cyanide, Total Phenols and Trivalent Chromium in outfall 001 based on the existing WQC, have been removed from the WQC issued by EQB. EPA has removed these limitations for the parameters mentioned above based on information in the Discharge Monitoring Reports and/or NPDES application which indicate that these parameters are not present in the discharge, or not present at levels which would warrant controls. EPA has removed these limitations without violating anti-backsliding provisions of the CWA since the permit includes the following two special conditions:

TABLE A-1

During the period beginning on from outfall serial number 001 (condenser cooling water, thermoelectric units' service water, cooling towers blowdown, basin cleaning)

and lasting through the permittee is authorized to discharge

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Kgs/day (lbs/day)</u>	<u>Other units (specified)</u>	<u>Measurements Frequency</u>	<u>Sample Type</u>
Flow M ³ /day (MGD) 3.4	Daily Max.	2.48 X 10 ⁶ (656 MGD)	Continuous Recording	Composite
BOD ₅ (ug/l) 1.2	Daily Avg.	45,000	Once a year	Grab
Dissolved Oxygen (mg/l) 1.2	Daily Max.	Shall contain not less than 4.0	Weekly	Grab
pH (SU) 1.2	Daily Avg.	Shall always lie between 7.3 - 8.5	Weekly	Grab
Temperature of (°C) 1.2	Daily Max.	No heat may be added to the waters of Puerto Rico which would cause the temperature of any site to exceed 94°F (34.5°C). The rate of temperature change shall not be more than 1°F per hour and shall not exceed a total of 5°F in any 24 hr. period except when due to natural causes.	Daily	Grab
Cadmium (Cd) (ug/l) 1.2	Daily Max.	5.0	Monthly	Grab
Iron (Fe) (ug/l) 1.2	Daily Max.	200.0	Monthly	Grab
Lead (Pb) (ug/l) 1.2	Daily Max.	15.0	Monthly	Grab
Silver (Ag) (ug/l) 1.2	Daily Max.	2.0	Monthly	Grab
Zinc (Zn) (ug/l) 1.2	Daily Max.	50.0	Monthly	Grab
Copper (Cu) (ug/l) 1.2	Daily Max.	50.0	Monthly	Grab

	<u>Monitoring Requirements</u>
	Measurements, Sample Type

	<u>Discharge Limitations</u>
	Kgs/day (lbs/day) Other units (specified) Daily Avg. Daily Max. Daily Avg. Daily Max.

Effluent Characteristic

Floating Solids and Visible Foam 1.2

The waters of Puerto Rico shall not contain floating debris, scum and other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious.

Taste and Odor-producing Substances 1.2

None in amounts that will interfere with the use for potable water supply, or will render any undesirable taste and/or odor to edible aquatic life.

Special Conditions

See attached sheet which contains special conditions that constitute part of this certification.

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at the outfall of discharge serial number 001.

All flow measurements shall achieve accuracy within the range $\pm 10\%$.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on [redacted] and lasting through [redacted] the permittee is authorized to discharge from outfall serial number 002 (boilers blowdown, trap floor and equipment drains, and stormwater runoff) Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Kgs/day (lbs/day)	Other units (specified)	Measurements Frequency	Sample Type
Flow M ³ /day (MGD)	2.4		Continuous Recording	
BOD ₅ (ug/l)	1.3	Daily Max. Daily Avg.	Once a year	Composite
Dissolved Oxygen (mg/l)	1.2	Shall contain not less than 4.0	Weekly	Grab
pH (SU)	1.2	Shall always lie between 7.3 - 8.5	Weekly	Grab
Color	1.2	Shall not be altered by other than natural phenomena.	Monthly	Grab
Oil & Grease (ug/l)	1.2.3	15000 20000	Twice per month	Grab
Temperature of (°C)	1.2	No heat may be added to the waters of Puerto Rico which would cause the temperature of any site to exceed 94°F (34.5°C). The rate of temperature change shall not be more than 1°F per hour and shall not exceed a total of 5°F in any 24 hr. period except when due to natural causes.	Daily	Grab

TABLE A-2

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR 0001660 SC

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Kgs/day (lbs/day)</u> Daily Avg.	<u>Other units (specified)</u> Daily Avg.	<u>Measurements Frequency</u>	<u>Sample Type</u>
Cadmium (Cd) (ug/l) ^{1,2}		5.0	Monthly	Grab
Iron (Fe) (ug/l) ^{1,2}		200.0	Monthly	Grab
Lead (Pb) (ug/l) ^{1,2}		15.0	Monthly	Grab
Mercury (Hg) (ug/l) ^{1,2}		1.0	Monthly	Grab
Silver (Ag) (ug/l) ^{1,2}		2.0	Monthly	Grab

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

TABLE A-2

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Kgs/day (lbs/day)</u>	<u>Other units (specified)</u>	<u>Measurements Frequency</u>	<u>Sample Type</u>
Floating Solids and Visible Foam ^{1,2}	Daily Max.	Daily Avg. Daily Max.	---	---
Taste and Odor-producing Substances ^{1,2}			---	---
Special Conditions			---	---

The waters of Puerto Rico shall not contain floating debris, scum and other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious.

None in amounts that will interfere with the use for potable water supply, or will render any undesirable taste and/or odor to edible aquatic life.

See attached sheet which contains special conditions that constitute part of this certification.

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at the outfall of discharge serial number 002.

All flow measurements shall achieve accuracy within the range $\pm 10\%$.

During the period beginning on and lasting through the permittee is authorized to discharge from outfall serial number 003 (condenser intake screen washwater, treatment plant effluent and stormwater runoff) Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements
	Kgs/day	Other units (specified)	
Flow M ³ /day (MGD)	Daily Max.	Daily Avg.	Frequency
BOD ₅ (ug/l)	Daily Max.	Daily Avg.	Sample Type
Dissolved Oxygen (mg/l)	Shall contain not less than 4.0		Continuous Recording
pH (SU)	Shall always lie between 7.3 - 8.5		Once a year Composite
Color	Shall not be altered by other than natural phenomena.		Weekly Grab
Turbidity (NTU)	5000.0		Daily Grab
Nitrogen (NO ₃ , NO ₂ , NH ₃) (ug/l)	15000	20000	Monthly Grab
Oil & Grease (ug/l)	No heat may be added to the waters of Puerto Rico which would cause the temperature of any site to exceed 94°F (34.5°C). The rate of temperature change shall not be more than 1°F per hour and shall not exceed a total of 5°F in any 24 hr. period except when due to natural causes.		Monthly Grab
Temperature of (°C)			Twice per month Grab

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

TABLE A-3

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>
	<u>Kgs/day</u> Daily Avg.	<u>(lbs/day)</u> Daily Max.	
Chromium Hexavalent (Cr+6) (ug/l) ^{1.2}		50.0	Monthly Grab
Chromium Total (Cr) (ug/l) ^{1.2}		300.0	Monthly Grab
Copper (Cu) (ug/l) ^{1.2}		50.0	Monthly Grab
Iron (Fe) (ug/l) ^{1.2}		200.0	Monthly Grab
Cyanide (Cn) (ug/l) ^{1.2}		20.0	Monthly Grab
Fluorides (F) (ug/l) ^{1.2}		1300.0	Monthly Grab

Other units (specified)
Daily Max.

Sample Type

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Kgs/day (lbs/day)</u> Daily Avg.	<u>Other units (specified)</u> Daily Max. Daily Avg. Daily Max.	<u>Measurements</u> Frequency	<u>Sample Type</u>
Floating Solids and Visible Foam ^{1.2}		The waters of Puerto Rico shall not contain floating debris, scum and other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious.	----	----
Taste and Odor-producing Substances ^{1.2}		None in amounts that will interfere with the use for potable water supply, or will render any undesirable taste and/or odor to edible aquatic life.	----	----
Special Conditions		See attached sheet which contains special conditions that constitute part of this certification.	----	----

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at the outfall of discharge serial number 003.

All flow measurements shall achieve accuracy within the range $\pm 10\%$.

During the period beginning on from outfall serial number 004

and lasting through (steam generators blowdown, floor and equipment drains, storm water runoff, cooling tower blowdown, basin cleaning waste water and fuel waste treatment plant effluent)

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	Kgs/day (lbs/day)	Other units (specified)	Measurements Frequency	Sample Type
Flow M ³ /day (MGD)				
BOD ₅ (ug/l)	Daily Max.	Daily Avg.	45,000	Continuous Recording
Dissolved Oxygen (mg/l)	Daily Max.	Daily Avg.	Once a year	Composite
pH (SU)	Shall contain not less than 4.0		Weekly	Grab
Oil & Grease (ug/l)	Shall always lie between 7.3 - 8.5		Weekly	Grab
Temperature of (°C)			Twice per month	Grab

No heat may be added to the waters of Puerto Rico which would cause the temperature of any site to exceed 94°F (34.5°C). The rate of temperature change shall not be more than 1°F per hour and shall not exceed a total of 5°F in any 24 hr. period except when due to natural causes.

TABLE A-4

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

NPDES NO. PR 0001031 SC

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>
	<u>Kgs/day (lbs/day)</u> Daily Avg.	<u>Other units (specified)</u> Daily Avg. Daily Max.	
Cadmium (Cd) (ug/l) 1.2		5.0	Monthly Grab
Cyanide (CN) (ug/l) 1.2		20.0	Monthly Grab
Lead (Pb) (ug/l) 1.2		15.0	Monthly Grab
Mercury (Hg) (ug/l) 1.2		1.0	Monthly Grab
Phenolic Substances (ug/l) 1.2		10.0	Monthly Grab
Silver (Ag) (ug/l) 1.2		2.0	Monthly Grab
Zinc (Zn) (ug/l) 1.2		50.0	Monthly Grab

	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Kgs/day (lbs/day)</u>	<u>Other units (specified)</u>	<u>Frequency</u>	<u>Sample Type</u>

Effluent Characteristic

Daily Max.	Daily Avg.	Daily Max.	Daily Max.
------------	------------	------------	------------

Floating Solids and Visible Foam 1,2

The waters of Puerto Rico shall not contain floating debris, scum and other floating materials attributable to discharges in amounts sufficient to be unsightly or deleterious.

Taste and Odor-producing Substances 1,2

None in amounts that will interfere with the use for potable water supply, or will render any undesirable taste and/or odor to edible aquatic life.

Special Conditions

See attached sheet which contains special conditions that constitute part of this certification.

Notes:

To comply with the monitoring requirements specified above, samples shall be taken at the outfall of discharge serial number 004.

All flow measurements shall achieve accuracy within the range $\pm 10\%$.

SPECIAL CONDITIONS

NPDES NO. PR 0001660

These special conditions are an integral part of the Water Quality Certificate:

1. The flow of discharge 001 shall not exceed the limitation of 2.48×10^6 M³/day (656 MGD) as daily maximum. No increase in flow shall be authorized without a recertification from the EQB. 2,4
2. The permittee shall provide an adequate system for the flow measuring for discharges 001, 002, 003 and 004. Within thirty (30) days after the Effective Date of Permit (EDP), the permittee has to submit to EQB for its evaluation the plans and specifications for the flow measuring systems for these discharges. Within sixty (60) days after the EQB approval date, the permittee must complete the equipment installation.
3. Within forty five (45) days after the Effective Date of the NPDES permit, permittee must repair the flowmeter of the wastewater treatment plant.
4. The flow measuring devices for the discharges 001, 002, 003 and wastewater treatment plant effluent must be periodically calibrated and properly maintained. Calibration and maintenance records must be kept. 2,4
5. Prior to the construction of additional treatment system or prior to the modification of the existing one, the permittee shall obtain the approval of the engineering report, plans and specifications from EQB. 4
6. Discharges 001, 002, 003 and 004 shall be free of oil sheen at all times. 2,4
7. A log book, must be kept for the material removed from the treatment plant detailing the following items:
 - a. Removed material, date and source of it.
 - b. Approximate volume and weight.
 - c. Method by which it is removed and transported.
 - d. Final disposal and location.
 - e. Person or contractor that offers the service.

Special Conditions (cont.)

A copy of the solid waste disposal permit issued by the authorized official from the EQB should be attached to the log book. 2,4

8. No toxic substances shall be discharged, other than those allowed as specified in the permit. Those toxic substances included in the Permit Renewal Application, but not regulated by the permit, shall not exceed those concentrations as specified by the applicable regulatory limitations. 2,3
9. The permittee shall operate all air pollution control equipment according to the provisions of the Regulation for the Control of Atmospheric Pollution, as amended. This shall be considered as the best management practice to control water pollution as a result of air pollution fallout. 4
10. The discharge of sanitary wastewaters to the existing septic tanks shall not be permitted until the permittee obtain the correspondents construction and operation permits under the Regulation for the Certification of Plans and Documents under consideration of the EQB. As soon as these permits are obtained, all sanitary wastewaters shall be conveyed to the existing septic tanks. The industry is responsible to maintain such system in order to prevent ground water pollution or to prevent any discharge due to an overflow. Discharge of sanitary wastewaters shall not be permitted. 2,4
11. The sludges produced within the facility due to the operation of the system shall be analyzed and all constituents shall be identified as required by "Resources Conservation and Recovery Act" (RCRA) and by "Toxic Substances Control Act" (TSCA). The permittee shall obtain appropriate federal or state permits prior to the final disposal of such wastes. The sludges shall be disposed properly in such manner that water pollution or other adverse effects to surface waters or to underground waters do not occur. The pertinent permit from EQB's Solid Wastes Program must be obtained. 2,5
12. The permittee shall at all times maintain in good working order and operate as efficiently as possible all facilities and systems for collection and treatment, which are installed or used by the permittee for water pollution control and abatement to achieve compliance

1. According to Article 5, Water Quality Standards Regulation and Amendments.
2. According to Article 5, Water Quality Standards Regulation and Amendments.
3. According to Article 5, Water Quality Standards Regulation and Amendments.
4. According to the Public Policy Environmental Act of June 18, 1970, as Amended, Act No. 9, 12 LPRA SS, 1131 Et. Seq.
5. According to the Public Policy Environmental Act of June 18, 1970, as Amended, Act No. 9, 12 LPRA SS, 1121-1142 Et. Seq.
6. According to the Comprehensive Water Quality Management Plan for Puerto Rico, 1970-2020.
7. According to the Environmental Protection Agency Pretreatment Standards (40 CFR 403, June 26, 1978, effective August 25, 1978, as Amended).

Exhibit D

EPA R2 ANTIBACKSLIDING POLICY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

DATE:

AUG 10 1983

SUBJECT:

Antibacksliding Policy

FROM:

Robert F. Vaughn, Chief
Water Permits and Compliance Branch

TO:

File

This memorandum is written to assist permit writers in decision-making when using EPA's draft flow chart B (attached), regarding relaxation of effluent limits based on water quality, for Puerto Rico NPDES permits. Relaxation of water quality-based limits are allowed under either of two exceptions. These exceptions are described in 303(d)(4) and 402(o)(2) of the Clean Water Act.

Relaxation of Limits under 402(o)(2)Non-Storm Water Discharges

This section of the memo will focus on non-storm water discharges where a new EQB WQC does not include a previously limited parameter.

For all discharges other than storm water, permit writers should consider whether the "new information" exception found in section 402(o)(2) can be applied. Specifically, the EQB reasonable potential analysis conducted in developing a new Water Quality Certificate and the associated background materials (i.e. NPDES application, DMR data) can be considered new information (subject to restrictions noted below). After determining that there is new information, when answering the question "Is compliance with Water Quality Standards assured?", permit writers may assume that the absence of a limited parameter in an EQB WQC constitutes a determination that a limit is not necessary and that the water quality standard is or will be attained. The final determination left for the permit writer is compliance with antidegradation requirement (see below). Therefore, subject to antidegradation requirements, permit limits may be relaxed if a previously limited parameter is not included in a new EQB WQC.

Storm Water Discharges

For discharges comprised solely of storm water, the assumption above may not be appropriate because EQB does not use its Interim Wasteload Allocation Guidance and does not complete rigorous reasonable potential analyses for storm water discharges. Therefore, permit writers are advised to consider whether any of the other section 402(o)(2) exceptions apply for storm water only discharges, and may determine that relaxation is permissible if one of those exceptions apply. It is appropriate for permit writers to assume that water quality standards will be attained in these circumstances, as a result of EQB's overall program implementation. Again, the antidegradation requirements (described below) would need to be met.

Relaxation of Limits under 303(d)(4)

As noted above, the absence of a limited parameter in an EQB WQC constitutes a determination that a limit is not necessary to achieve water quality standards, and the 402(o)(2) new information exception may be applied. On the other hand, the application of a less stringent limit in a WQC generally does not allow the use of the new information exception in light of the special requirement in Section 402(o)(2) that revised waste load allocations must result in a net decrease of pollutants if such revised allocations are deemed to be new information. Therefore, if an EQB WQC contains a less stringent limitation, permit writers may evaluate whether the section 303(d)(4) exceptions would apply.

Permit writers should use available information, including 305(b) reports, 303(d) reports, 304(l) reports and lists and STORET data, to evaluate if the receiving waters are attained or not attained. In the absence of other information, permit writers should follow the "nonattainment waters" route through the flow chart. The rationale behind this recommendation is that, if a water quality-based limit was in a previous permit, this was necessary because the segment was water quality limited for that parameter. [The reports and data needed to make a determination of whether receiving waters are attained or nonattained will be located in one file folder to facilitate permit writers' review of the material.]

Nonattainment Waters

When answering the question "Is limit based on a TMDL/WLA?", permit writers can consider any previous "end-of-pipe" limits as based on a TMDL/WLA. Essentially, we can assume that the limit was based on a simplified TMDL/WLA which did not allow the permittee to contribute to a water quality exceedence.

When answering the question "Will change result in attainment?", for all discharges other than storm water, permit writers may assume that a less stringent limit in an EQB Water Quality Certificate constitutes a determination that the limit is sufficient to assure that the water quality standard is or will be attained. In this case, the existing permit limit could be relaxed, although the antidegradation procedures (described below) would need to be met.

Attainment Waters

See discussion on antidegradation below.

Antidegradation Requirements

Retention or Relaxation of Effluent Limitations

As noted above, and as indicated in EPA's draft flow chart B, antidegradation requirements must be considered in the antibacksliding decision making process. When answering the question "Is revision consistent with approved antidegradation policy?", or "Is compliance with antidegradation requirements assured?", the following procedures should be followed. In cases where a less stringent limit is included in an EQB WQC, permit writers should evaluate effluent data to check if the discharge is meeting the limit(s). If yes, the limit should be retained to prevent degradation of attained and high quality waters, and to prevent further degradation of nonattained waters. If the discharger is not meeting the existing limit, but is discharging effluent of a better quality than the proposed WQC requirement, an alternate limit should be developed based on existing effluent quality.

Deletion of Effluent Limitations

For those cases where EQB has determined that a water quality-based limit is no longer necessary for a parameter and has deleted the parameter from the WQC, the permit writer can remove the limit without violating antidegradation requirements. The rationale would be that the permittee will be discharging the pollutant at the same level, therefore the discharge would not contribute to further degradation of the receiving water and existing uses would be maintained. When removing a limit from the permit, permit writers must include a special condition in the permit which requires the permittee to achieve the same level of treatment as in the previous permit. The special condition could include a one year monitoring requirement for the deleted parameters to ensure that the level of treatment previously achieved by the permittee is maintained.

No Monitoring Required Parameters

In certain cases, existing permits may contain a limit for a parameter but may specify "No Monitoring Required". For those cases, where EQB has deleted a "no monitoring required" parameter based on the reasonable potential analysis, permit writers would not be able to evaluate the discharge with respect to antidegradation and develop alternate limits based on existing effluent quality if necessary. In this situation, permit writers can assume that the absence of a monitoring requirement for the parameter in the previous permit constituted a determination that the parameter was not contributing to water quality degradation. The permit writer may relax or remove the effluent limitation on the basis that the permittee's discharge is not contributing to nor does it have the potential to cause an excursion of the water quality standard for that parameter. Therefore, a water quality-based effluent limitation is not necessary and the permittee's discharge will not contribute to water quality degradation for that parameter.

Existing Effluent Quality

As discussed above, the permit writer may have to develop a limit for a parameter based on the permittee's existing effluent quality. To derive this limit, permit writers should use data available from the permittee's DMRs and application to perform a statistical analysis based on the lognormal distribution if all measurements are above the detection limit or on the delta-lognormal distribution if some measurements are below detection. A daily maximum limit or a monthly average limit will be derived based on the number of measurements reported for the parameter. [A computer program will be developed to facilitate the derivation of the limit.]

The monitoring frequency for limits derived based on existing effluent quality shall be monthly. A condition should be placed in the permit which allows the permittee to request a modification to the monitoring frequency, after one year, if compliance is demonstrated. If a monitoring frequency for the parameter is included in the WQC, then the frequency specified in the WQC should be retained if it is more stringent.

Non-Storm Water Discharges

If twenty-four measurements are available (above detection limit) for the parameter, the permit writer shall derive a daily maximum limit by performing a statistical analysis of the permittee's discharge data (DMR data) based on the 99th percentile of the lognormal distribution. If some of the measurements are below the detection limit, the statistical analysis should be based on the delta-lognormal distribution.

If less than twenty-four measurements exist, the permit writer shall derive a monthly average limit for the parameter based on the 95th percentile of the lognormal distribution or the delta-lognormal distribution if some of the measurements are below detection.

Storm Water Discharges

For storm water discharges, the permit writer should use all measurements available (excluding the highest and lowest measurement reported) to derive a daily maximum limit based on the 95th percentile of the lognormal distribution or the delta-lognormal distribution if some of the measurements are below detection.

The assumptions made in this memorandum may not be applicable to all discharge situations (e.g. effluent dominated streams, intermittent discharges,). Therefore, permit writers should perform a case-by-case analysis for each situation, and they may document, in fact sheets, reasons for antibacksliding decisions. Deviation from this policy memo is expected in cases where a permit writer has information which would demonstrate that limits should be retained to protect water quality.

Attachment

FLOW CHART B

DRAFT

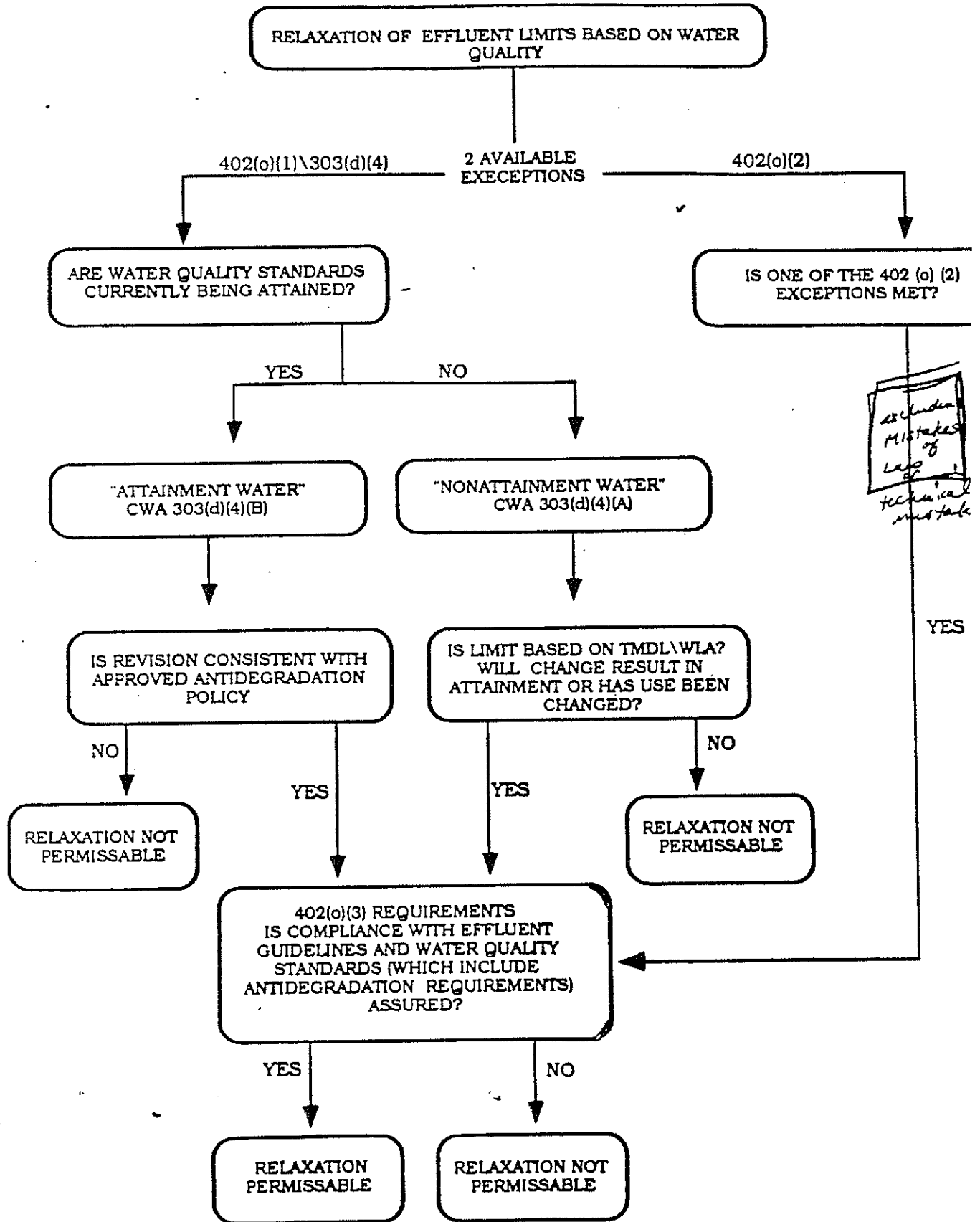


Exhibit E

CONTESTED CONDITIONS

PROVISIONS OF THE NEW NPDES PERMIT WHICH SHOULD BE REMANDED

CONTESTED CONDITIONS

1. The following parameter limits and permit notes, for which the final permit has either no units associated with it or is missing the text of the note:

- Outfall 001 (Permit Table A-1, page 3 of 53) – Silver has no units.
- Outfall 001 (Permit Table A-1, pages 3 and 4 of 53) - The parameters Copper and Lead have a reference of the Greek letter γ but the corresponding note at the end of the Table is missing.
- Wastestream 001b (Permit Table A-1b, page 6 of 53) - Total Chromium has no units.
- Outfall 004 (Permit Table A-4, page 16 and 18 of 53), for Cyanide Free, there is a symbol for its Measurement Frequency but there is no related note or reference.
- Wastestream 004a (Permit Table A-4a, page 19 of 53) – Free Available Chlorine, Total Chromium and Total Zinc have no units.

2. The parameters (noted by shading parameters in Table 1 below), which the Fact Sheet and/or the Responsiveness Summary indicated would be eliminated from the permit. (Permit reference pages are included with Table 1 below).

3. Apparent inconsistencies between two of the dates for two 316(b) requirements (Permit, Special Conditions, pages 36 and 37 of 53).

5. As shown in Table 1 below, various metal limits, sampling and other requirements that the Water Quality Certificate did not include but which are included in the respective Outfall Tables in the permit.

Table 1
Parameters Which EQB Removed from the WQC
but which are Included in the Final Permit

Outfall	Cadmium	Copper	Lead	Silver	Zinc	Mercury	Cyanide Free
001 (Table A-1 ^a)	X	X	X	X	X		
002 (Table A-2 ^b)	X		X	X		X	
003 (Table A-3 ^c)		X				X	X
004 (Table A-4 ^d)			X	X	X	X	X

Notes to Table 1:

The shaded parameters are those which the EPA prepared Fact Sheet and/or the Response to Comments indicated being removed from the permit in their entirety.

^a Permit, pages 2 and 3 of 53 pages. PREPA notes that Zinc was not listed on the Fact Sheet (see pages III-8 and III-9).

^b Permit, page 9 of 53 pages.

^c Permit, page 12 of 53 pages.

^d Permit, page 16 of 53 pages.

6. The Dissolved Oxygen (DO) limit for 002 (Table A-2, page 9 of 53 pages) and 004 (Table A-4, page 16 of 53 pages).

7. All notes and other requirements **solely** related to the above listed parameters and conditions throughout the rest of the Permit are also withdrawn. Notes and requirements related to these which also relate to other parameters and requirements in the permit will be withdrawn for the above requirements and parameters but will remain in effect as to the other requirements and parameters.