



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 2
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NEW YORK, NY 10007-1866

APR - 1 2004

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

Re: Final Permit- Prevention of Significant Deterioration (PSD)- for the San Juan Combined Cycle Project- Puerto Rico Electric and Power Authority (PREPA)

Dear Mr. Plaza:

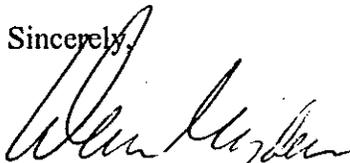
On December 16, 2002, PREPA submitted a PSD permit application for the construction of a 476 megawatt combustion turbine combined cycle electric generating station at the San Juan site. The U.S. Environmental Protection Agency (EPA) issued a Proposed PSD Permit for public comments on January 23, 2004. The public comment period commenced on February 6, 2004. EPA also held two Public Availability Sessions on February 18, 2004, related to this permit. The purpose of these sessions was to conduct outreach to the public beyond that which is required by 40 CFR Part 124, in order to explain the project and be available to clarify the permitting actions and procedures. During these sessions only one individual asked for clarifications. EPA also indicated many times during these sessions that any comment on this PSD permit must be submitted in writing by the close of the public comment period. This is consistent with the requirements in 40 CFR §124.11 that comments must be submitted in writing. EPA also indicated in its draft permit public notice that any request for a public hearing must be submitted within 15 days of the notice. No such request was submitted. EPA did not receive any written comments during the public comment period which ended on March 8, 2004. Therefore, EPA today issues the proposed permit as final without any changes to the proposed permit.

This final permit will allow PREPA to construct two new Westinghouse 501 combustion turbines which will use distillate oil with 0.05% sulfur as the only fuel. These turbines will be limited to operate for a total of 15,000 hours per year. Additionally, the existing four boilers (7-10) will be modified to lower the nitrogen oxide (NOx) emissions and use heavy oil with 0.5% sulfur. EPA has determined that this final permit meets all applicable requirements of the PSD regulations codified at 40 CFR §52.21 and the Clean Air Act (the Act). Accordingly, EPA hereby approves PREPA's PSD permit for the Combined Cycle Project. This letter and its enclosures represent EPA's final permit decision. A project description and summary of the control technologies to be used are provided in Enclosure I. The permit conditions are delineated in Enclosure II. This final permit decision becomes effective today. Since no comments were received during the public comment period, this permit may not be challenged under the Consolidated Permit Regulations, codified at 40 CFR Part 124, that apply to EPA's

processing of this permit decision and no judicial review is available. Notice of the Agency's final action with respect to this permit will be published in the Federal Register. Under Section 307(b) of the Act, this final Agency action shall not be subject to judicial review in civil or criminal proceedings for enforcement.

If you have any questions regarding this letter, please call Mr. Steven C. Riva, Chief, Permitting Section, Air Programs Branch, at (212) 637-4074.

Sincerely,



Walter Mugdan, Director
Division of Environmental Planning and Protection

Enclosures

cc: Angel Berrios, Associate Member
Puerto Rico Environmental Quality Board (w/o)

Evelyn Rodriguez Citron, Director, Air Quality Area
Puerto Rico Environmental Quality Board (w/)

David Shea, ENSR (w/)

**PUERTO RICO ELECTRIC POWER AUTHORITY
SAN JUAN COMBINED CYCLE PROJECT**

**FACT SHEET
Final Permit**

This fact sheet has been developed under provisions of the Clean Air Act (CAA) for the final permit which the United States Environmental Protection Agency (EPA) issues to the Puerto Rico Electric Power Authority (PREPA) for the construction of the San Juan Combined Cycle Project in San Juan, Puerto Rico.

DESCRIPTION OF FACILITY: PREPA proposes to install and operate a 476 megawatt (MW) combined cycle turbine electric generating project in San Juan, Puerto Rico. The proposed electric generating units will consist of two No. 2 fuel oil fired combustion turbines and two steam turbines driven by two unfired Heat Recovery Steam Generators (HRSGs). Each unit will have a power output of 238 MW. PREPA proposes to use the facility to provide new electrical generating capacity to maintain adequate system reliability throughout the island, to provide PREPA with instantaneous generating capacity during periods of high daily demand, and to minimize the number of black-outs and brown-outs that may occur to the PREPA electrical system. Combustion emissions will be controlled by the use of low sulfur fuel oil (0.05% sulfur by weight maximum), good combustion practices and air pollution control equipment. When this project will be on line PREPA will operate two new combustion turbines and existing boiler Units 7,8,9 and 10 at this site. The total electrical output will increase from 400 MW to 876 MW. PREPA will install two 2.5 MW auxiliary diesel generators, two new fixed roof storage tanks and six new cooling towers.

BACKGROUND:

- **November 30, 2000-** EPA issued a final Prevention of Significant Deterioration (PSD) Permit to PREPA to construct two combustion turbines to produce 464 MW power. This PSD permit was for the VOC and the CO. PREPA netted out of PSD for all other pollutants by taking credit for shutdown of Units 5 and 6.
- **June 10, 2002-** EPA informed to PREPA that since PREPA did not commence construction of the turbines within 18 months of the November 30, 2000, PSD permit and also exceeded the 5 year contemporaneous period for the shutdown emission credits, a new application must be submitted. The new application, must address the pollutant NOx because emission increases of NOx now exceed the PSD significance level.
- **December 16, 2002-** ENSR on behalf of PREPA, formally submits a new PSD permit application to EPA for the same turbine units. The use of more appropriate ambient temperature results in 476 MW output in this new application.

- **December 2002 to March 2003** - EPA informs PREPA via e-mails about additional information/clarifications about PREPA's PSD permit application. PREPA provided responses via e-mails and an additional submittal on data related to sulfur content of the fuel oil in its netting analyses.
- **August 4, 2003**- PREPA submits emissions data related to startup/shutdown operations, indicating it received them from Westinghouse.
- **September 11, 2003** - EPA informs PREPA in writing that EPA has determined that the San Juan Combined Cycle Project PSD permit application is complete as of August 4, 2003.
- **January 23, 2004**- EPA issues a Proposed Permit for public comments.
- **February 6, 2004**- EPA publishes public notices in local English and Spanish newspapers announcing this project and the opportunity for public review and comments. The public comment period commences on February 6.
- **February 18, 2004**- EPA holds two Public Availability Sessions in a school auditorium near the facility to explain this project. The purpose of these sessions was to conduct outreach to the public beyond that which is required by 40 CFR Part 124, in order to explain the project and be available to clarify the permitting actions and procedures. One interested party asked for certain clarifications. EPA indicated during these sessions that all comments must be submitted in writing, and that no comments will be accepted at these sessions.
- **March 8, 2004**- The public comment period ends and EPA does not receive any comment.

BASIS FOR PERMIT CONDITIONS: The permit conditions are based on the requirements of 40 CFR §52.21. These include requirements that owners or operators of a new major stationary source or major modification: meet applicable State Implementation Plan (SIP) emission limitations and emission standards under 40 CFR Part 60 and Part 61; apply best available control technology (BACT) for each pollutant subject to regulation under 40 CFR 52.21(j); and conduct air quality analyses under 40 CFR §52.21(k)-(p) to demonstrate that emissions would not violate any National Ambient Air Quality Standard (NAAQS) or PSD increment.

Based on the information submitted by ENSR on behalf of PREPA, EPA determined that the project is PSD-affected for nitrogen oxide (NO_x), carbon monoxide (CO) and volatile organic compounds (VOC). PREPA netted out of PSD review for particulate matter (PM/PM₁₀), sulfur dioxide (SO₂) and sulfuric acid mist (H₂SO₄) by proposing to change the fuel in existing four boiler units from 1.5% to 0.5% sulfur and limiting the use of new combustion turbines at 85.6 %

annual capacity factor. This project will result in net emission decreases of SO₂, PM/PM₁₀ and sulfuric acid mist. The lead emission increases will be below PSD significance level. EPA has determined that:

- the proposed BACT limitations in the draft permit ensures that the project emissions will not result in exceedance of any NAAQS; and
- PSD increment consumption in the Class II area will be less than (4.09 ug/m³ consumption vs. 25 ug/m³ allowable) the available increment.

As part of the final permit conditions and the netting proposal, PREPA will be required to:

- monitor the fuel consumption and the ratio of steam to fuel being fired in the turbines, and monitor the sulfur content and the nitrogen content of the fuel being fired in the turbines as required by the New Source Performance Standards (NSPS). In addition, PREPA will operate monitors for CO, NO_x, opacity; and
- perform stack tests within 180 days after initial startup for CO, VOC and NO_x.

APPEAL PROCEDURES: EPA did not receive any comments on the Proposed Permit and and EPA made no changes from the proposed to the final permit, therefore, no administrative review is available.

ENCLOSURE I
PUERTO RICO ELECTRIC POWER AUTHORITY (PREPA)
SAN JUAN COMBINED CYCLE PROJECT
Final Permit

GENERAL PROJECT DESCRIPTION: On December 16, 2002, the Puerto Rico Electric Power Authority (PREPA) submitted an application for a combined cycle project at its San Juan location. On January 23, 2004, EPA issued a proposed permit for this project. In this project, PREPA proposed to install and operate two (2) 238 megawatt (MW, net) combined cycle turbines. The facility will produce electricity from Westinghouse 501 distillate oil fired combustion turbines, each with a power output of 171 MW, an additional 67 MW electricity will be produced by two steam turbines driven by two Heat Recovery Steam Generators (HRSG). No supplemental firing of fuel will be used in the HRSGs. Each combustion turbine will burn No. 2 fuel oil having a maximum sulfur content of 0.05 percent by weight. Both turbine units will be operated 15,000 hours per year. As a part of this project, PREPA proposes to modify burners to lower Nitrogen Oxide (NOx) emissions from four existing residual fired boiler units (7 through 10) and switch to using 0.5% from 1.5% sulfur heavy oil in those units. The total capacity at this site will increase from 400 MW to 876 MW after repowering. PREPA also proposed to install two new 2.5 MW auxiliary diesel generators, convert two existing residual fuel oil storage tanks to no. 2 oil storage tanks, install two new fixed roof storage tanks (one for no. 2 oil and the other for residual oil) and will install six new cooling towers for auxiliary equipment cooling.

PSD-Affected Pollutants Emitted at the PREPA San Juan Repowering Project: The existing facility is classified as a major stationary source because it has the potential to emit more than 100 tons per year of at least one pollutant regulated by the Clean Air Act. Based on this proposal, EPA has concluded that PSD will not apply to (i.e., PREPA will net out of the PSD review for) sulfur dioxides (SO₂), particulate matter (PM/PM₁₀) and sulfuric acid mist (H₂SO₄). The lead emission increase will be below significant level for PSD review. However, PSD will apply to nitrogen oxide (NOx), carbon monoxide (CO) and volatile organic compounds (VOCs). In addition, the new combustion turbines will be limited to 85.6 % annual capacity (or 15,000 hours) utilization. Under these conditions, there will be a net decrease or no significant increase in emissions of sulfur dioxides (SO₂), sulfuric acid mist (H₂SO₄), particulate matter (PM/PM₁₀), and lead (Pb).

PREPA Combined Cycle Project Control Equipment: The proposed facility will employ Best Available Control Technology to control NOx, CO and VOC. Emissions of **nitrogen oxide** will be controlled by installing a steam injection system in the combustion turbines. The steam to fuel ratio for each unit shall be established during performance testing and shall be incorporated into this PSD permit. NOx emissions from the existing four residual oil fired units 7 through 10 shall be reduced by modifying burners and good combustion control. Emissions of **carbon monoxide** and **volatile organic compounds** will be controlled by implementing good combustion practices.

PREPA shall be required to operate each turbine within the designed combustion parameters of the Westinghouse 501 distillate oil fired combustion turbine. In addition, PREPA shall be

required to monitor the combustion temperature and fuel flow rate of each turbine, and to maintain each turbine in good working order.

This permit further requires that the proposed facility employ the following control techniques to net out of PSD applicability for the other pollutants:

Emissions of **sulfur dioxide** and **sulfuric acid mist** shall be controlled by the use of only low sulfur No.2 fuel oil in which the sulfur content may not exceed 0.05% by weight in the combustion turbines and by the use of 0.5% sulfur heavy oil in the existing boiler units 7-10. Emissions of **total particulate matter and particulate matter less than 10 microns** will be controlled by implementing good combustion practices.

The auxiliary diesel generators will be limited to a total of 40 hours per year of operation. The storage tanks will be installed with a fixed roof and the cooling tower particulate emissions will be controlled by installing drift eliminators.

Summary: Table I provides the summary of net emissions from this project. As indicated in the table, there are three pollutants, NOx, CO and VOC, for which the facility is subject to PSD. Table II summarizes the PSD netting analyses and Table III lists BACT and other controls for this project. Table IV and V relate to air quality analyses pertaining to this project.

**PREPA San Juan
Table I- PSD Emissions Analysis**

POLLUTANT	PSD SIGNIFICANT EMISSION RATE TONS/YEAR	PREPA SAN JUAN'S NET EMISSIONS TONS/YEAR*	PSD APPLICABLE
Nitrogen Oxides (NO_x)	40	1107	Yes
Sulfur Dioxide (SO₂)	40	(10812)	No
Sulfuric Acid Mist (H₂SO₄)	7	(1)	No
Particulate Matter - Total (PM)	25	(1)	No
Particulate Matter less than 10 microns (PM₁₀)	15	(1)	No
Carbon Monoxide (CO)	100	1222	Yes
Volatile Organic Compounds (VOC)	40	124	Yes
Lead	0.6	0.1	No

* Net emissions reflect emission increases due to new turbines and emission decreases due to modifications and operational changes at the existing units on site. Thus net emissions reflect actual emissions before the project is implemented as compared with the potential to emit after the changes take place. () indicates that there will be a net decrease of emissions at this site due to repowering

PREPA San Juan

Table II- Summary of PSD Netting Analyses (tons/yr)

POLLUTANT	COMBUSTION TURBINE EMISSIONS	AUX DIESEL GENERATOR EMISSIONS	NEW COOLING TOWER NET EMISSIONS	NEW STORAGE TANK NET EMISSIONS	CONTEMPORARY CHANGES DUE TO FUEL SULFUR REDUCTION IN UNITS 7-10	BURNER MODIFICATIONS AT UNITS 7-10	NET EMISSIONS CHANGE AT THIS FACILITY	PSD De MINIMIS LEVELS	PSD APPLICABLE?
SO ₂	640.1	0.047	0.0	0	(11452.4)	NA	(10812.3)	40	NO
H ₂ SO ₄	98	0.0072	0.0	0	(99)	NA	(1)	7	NO
LEAD	0.11	8.2E-06	0.0	0	0	NA	0.1	0.6	NO
NOx	1658.9	2.048	0.0	0	0	(553.6)	1167.4*	40	YES
PM	360.9	0.093	0.623	0	(362.6)	NA	(1)	25	NO
PM10	453.1	0.093	0.015	0	(454.1)	NA	(1)	15	NO
CO	1221.5	0.465	0.0	0	0	NA	1222	100	YES
VOC	116.6	0.084	0.0	7.377	0	NA	124.1	40	YES
TOTAL	4549.2	2.836	0.638	7.377	(12368.1)	(553.6)	(8361.7)		

() denotes decrease in emissions

* Unlike the November 30, 2000, PSD Permit, which showed a 84.8 tons/year net decrease in NOx emissions, this proposed permit netting analyses shows a net emission increase in NOx. This is because EPA is no longer crediting decreases in NOx for the retiring of Units 5 and 6. Note that PREPA proposes to operate the turbines 15,000 hours per year vs. 12,067 hours per year in the earlier PSD permit.

PREPA San Juan
TABLE III- BACT and Other Controls (each turbine)

POLLUTANT	NSPS LEVELS	EMISSION LIMITS FOR NEW TURBINES	EMISSION CONTROL FOR NEW TURBINES
SO₂	150 PPM DV***	13 PPM DV	LOW SULFUR No. 2 FUEL (0.05%)
NO_x	110 PPM DV	34.2 PPM DV	STEAM INJECTION
PM	N/A	0.041 lbs/MMBtu	COMBUSTION CONTROL
PM-10	N/A	0.052 lbs/MMBtu	COMBUSTION CONTROL
H₂SO₄	N/A	13.8 lbs/hr	LOW SULFUR OIL (0.05%)
CO	N/A	60 PPM DV @ 50% LOAD 25 PPM DV @ BASE LOAD	COMBUSTION CONTROL
VOC	N/A	10 PPM DV @ 60% LOAD 6.2 PPM DV @ BASE LOAD	COMBUSTION CONTROL

*** All ppm dv emission limits are corrected to 15% oxygen

PREPA San Juan

Table IV- Air Quality Analyses (concentrations in ug/m3)

Pollutant Averaging Period	Modeled Impact of New Emissions	Significant Impact Level	Increment & NAAQS Required?	Monitoring Exemption Level	Existing Monitored Concentration	PREPA Exempt from Installing Monitor?
NO ₂ Annual	4.09	1	YES	14	34	YES
CO 1 hour 8 hour	584 166	2000 500	NO	--- 575	12,190 6,670	YES

PREPA San Juan

Table V- Cumulative Source PSD Increment and NAAQS (concentrations in ug/m3)

Pollutant Averaging Period	Modeled Increment	Allowable Increment	Modeled + Background NAAQS (i.e. total impact)	Allowable NAAQS	Comply with Increment and NAAQS?
NO ₂ Annual	4.09	25	73.7	100	YES
CO 1 hour 8 hour	NonApplicable NonApplicable	NonApplicable NonApplicable	12,774 6,836	40,000 10,000	YES YES

- Representative measured ozone concentrations were obtained. The maximum measured ozone concentration was 196ug/m³. This is below the ozone NAAQS of 235 ug/m³.

ENCLOSURE II

PUERTO RICO ELECTRIC POWER AUTHORITY SAN JUAN REPOWERING PROJECT Final Permit

The PREPA San Juan Repowering Project as described in Enclosure I is subject to the following conditions.

I. Permit Expiration

This PSD Permit shall become invalid if construction:

1. has not commenced (as defined in 40 CFR Part 52.21(b)(9)) within 18 months of the effective date of this permit;
2. is discontinued for a period of 18 months or more; or
3. is not completed within a reasonable time.

I. Notification of Commencement of Construction and Startup

The Regional Administrator (RA) shall be notified in writing of the anticipated date of initial startup (as defined in 40 CFR Part 60.2) of each combustion turbine not more than sixty (60) days nor less than thirty (30) days prior to such date. The RA shall be notified in writing of the actual date of both commencement of construction and startup of each combustion turbine within fifteen (15) days after such date.

III. Plant Operations

All equipment, facilities, and systems, including the combustion and electric generation units, installed or used to achieve compliance with the terms and conditions of this PSD Permit shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions. The continuous emission monitoring systems required by this permit shall be on-line and in operation 95% of the time when turbines are operating. PREPA shall demonstrate initial and continuous compliance with the operating, emission and other limits according to but not limited to the performance testing and compliance assurance requirements of this permit.

IV. Right to Entry

Pursuant to Section 114 of the Clean Air Act (Act), 42 U.S.C. §7414, the Administrator and/or his/her authorized representatives have the right to enter and inspect for all purposes authorized under Section 114 of the Act. The permittee acknowledges that the Regional Administrator and/or his/her authorized representatives, upon the presentation of

credentials shall be permitted:

1. to enter at any time upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this PSD Permit;
2. at reasonable times to access and to copy any records required to be kept under the terms and conditions of this PSD Permit;
3. to inspect any equipment, operation, or method required in this PSD Permit; and
4. to sample emissions from the source relevant to this permit.

V. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed, this PSD Permit shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this PSD Permit and its conditions by letter, a copy of which shall be forwarded to the Regional Administrator.

VI. Operating Requirements

Each Combustion Turbine

1. Each Westinghouse 501 distillate oil fired combustion turbine unit shall be limited to a maximum fuel consumption rate (24 hour average) of 12,548 gallons per hour based on 135,000 British Thermal Units HHV per gallon.
2. Except for startup and shutdown, each Westinghouse 501 distillate oil fired combustion turbine unit shall only be allowed to operate between the following two heat input levels (24 hour average) (the term "load" refers to power output):
 - a. base load (1,694 MM Btu/hr); and
 - b. 60% load (1,167 MM Btu/hr)
3. Heat Recovery Steam Generators (HRSG) shall not combust supplemental fuel.
4. For the purposes of this PSD permit, startup and shutdown shall be defined as:
 - a. Startup for each Westinghouse 501 distillate oil fired combustion turbine is defined as the period beginning with the initial firing of No. 2 fuel oil in the combustion turbine combustor and ending at the time when the load has increased to the 60% load. The duration of the startup shall not exceed for any given cold startup 5.4 hours (>72 hours shutdown), warm startup 2.75 hours (10 to 72 hours shutdown) and hot startup 1 hour (<10 hours shutdown).
 - b. Shutdown for each Westinghouse 501 distillate oil fired combustion turbine is

defined as the period of time beginning with the load decreasing from 60% load and ending when the cessation of operation of the combustion turbine. The duration of the shutdown shall not exceed three (3) hours for any given combustion turbine shutdown.

- c. During startup and shutdown, PREPA shall comply with all mass emission limits except for Carbon Monoxide, NO_x and VOC emissions which shall be limited to 0.943 lbs/MMBtu, 0.533 lbs/MMBtu and 0.070 lbs/MMBtu respectively for each start up and shut down. PREPA shall demonstrate compliance with the startup/shutdown CO and NO_x emission rate pursuant to condition XIX of this permit. PREPA shall also comply with the opacity limits during each startup and shutdown. The total number of cold, warm and hot startup-shutdown cycles for both turbines combined shall be limited to 24, 104 and 200 respectively, in a year. The two turbines shall not be started up or shut down simultaneously.
5. At all times, including periods of startup, shutdown, and malfunction, PREPA shall, to the extent practicable, maintain and operate the two Westinghouse 501 distillate oil fired combustion turbines including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to EPA and/or EQB which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the plant.

Auxiliary Diesel Generators

1. The maximum design capacity of each Auxiliary Diesel Generator shall be 2500 kilowatts (2.5 MW).
2. The Auxiliary Diesel generators shall be limited to a maximum operation of 40-hours total in a year. The maximum fuel usage shall be limited to 13,690 gallons per year on a monthly rolling average basis.
3. The Auxiliary Diesel Generator(s) shall not operate concurrently with any two combustion turbines except during combustion turbine startup and Auxiliary Diesel Generator testing.

VII. Emission Limitations

Each Westinghouse 501 Combustion Turbine

1. Carbon Monoxide (CO) (3-hour rolling average)
The concentration/mass emission rate of CO in the exhaust gas, corrected to 15% oxygen, shall not exceed:
 - (i) 25 ppm_{dv}/0.06 lbs/MMBtu at the base load heat input level; and
 - (ii) 60 ppm_{dv}/0.14 lbs/MMBtu between 60% and the base load heat input level

2. Volatile Organic Compounds (VOC) (1-hour average)

The concentration/mass emission rate of VOC (as methane) in the exhaust gas, corrected to 15% oxygen, shall not exceed:

- (i) 6.2 ppm_{dv}/0.0083 lbs/MMBtu at the base load heat input level; and
- (ii) 10 ppm_{dv}/0.0133 lbs/MMBtu between 60% and the base load heat input level

3. Oxides of Nitrogen (NO_x) (8-hour rolling average)

The concentration of NO_x in the exhaust gas shall not exceed 34.2 parts-per-million by volume on a dry basis (ppm_{dv}), corrected to 15% oxygen and 0.131 lbs/MMBtu at load 60% and above.

4. Opacity: Opacity of emissions, as measured by 40 CFR Part 60, Method 9 and an Opacity monitor, shall not exceed 20% except for a period or periods of not more than 4 minutes in any 30-minute interval when the opacity shall not exceed 60%.

Each Auxiliary Diesel Generator

1. Carbon Monoxide (CO)

The CO emissions shall not exceed 23.3 lbs/hr

2. Volatile Organic Compounds (VOC)

The VOC emissions shall not exceed 4.19 lbs/hr

3. Oxides of Nitrogen (NO_x)

The NO_x emissions shall not exceed 102 pounds per hour (lbs/hr) calculated as NO₂.

4. Opacity

Opacity of emissions, as measured by 40 CFR Part 60, Method 9, shall not exceed 20%, except for a period or periods of not more than 4 minutes in any 30-minute interval when the opacity shall not exceed 60%.

VIII Pollution Control Equipment and Opacity Measurement

- 1. Each Westinghouse 501 distillate oil fired combustion turbine shall continuously operate in accordance with its design specified combustion parameters.
- 2. PREPA shall install and shall continuously operate at each Westinghouse 501 distillate oil fired combustion turbine a steam injection system; and a curve showing the variation of the steam to fuel ratio for each unit shall be established during the performance testing. PREPA operators will use this curve determined during the performance testing and contained within the written report submitted to EPA.
- 3. PREPA shall conduct weekly opacity observations at each turbine emission point in accordance with 40 CFR Part 60, Method 9. The opacity observations shall be made at

the point of greatest opacity in that portion of the plume where condensed water vapor is not present. Opacity shall not exceed 20%, except for a period not more than 4 minutes in any 30-minute interval when opacity shall not exceed 60%.

IX. Continuous Emission Monitoring (CEM) Requirements

1. Prior to the date of startup and thereafter, PREPA shall install, calibrate, maintain, and operate the following continuous monitoring systems in each of the combustion turbine exhaust stack.
 - a. A CEM to measure and record stack gas carbon monoxide concentrations. The system shall meet all applicable EPA monitoring performance specifications (including but not limited to 40 CFR Part 60.13 and 40 CFR Part 60, Appendix B, Performance Specifications 4, and Appendix F).
 - b. A continuous emission monitoring system (CEM) to measure and record stack gas NO_x (as measured as NO₂) concentrations. The system shall meet all applicable EPA monitoring performance specifications (including but not limited to 40 CFR Part 60.13 and 40 CFR Part 60, Appendix B, Performance Specifications 2, and Appendix F).
 - c. A continuous opacity monitoring system (COM) to measure and record stack opacity levels. The system shall meet all applicable EPA monitoring performance specifications (including but not limited to 40 CFR Part 60.13 and 40 CFR Part 60, Appendix B, Performance Specifications 1).
 - d. Continuous monitoring systems to measure and record steam to fuel ratios. Upon request of EPA, PREPA shall conduct a performance evaluation of the monitor when testing procedures are formalized by the Agency in the future.
2. Not less than 90 days prior to the date of startup of each combustion turbine, PREPA shall submit a written report to EPA of a Quality Assurance Project Plan for the certification of the combustion turbine's monitoring systems. Performance evaluation of the monitoring systems may not begin until the Quality Assurance Project Plan has been approved by EPA.
3. PREPA shall conduct performance evaluations of the COMS's, CEMS's and continuous monitoring systems during the initial performance testings required under Permit Condition X of this permit or within 30 days thereafter in accordance with the applicable performance specifications in 40 CFR Part 60, Appendix B, and 40 CFR Part 52, Appendix E. PREPA shall notify the Regional Administrator (RA) 15 days in advance of the date upon which demonstration of the monitoring system(s) performance will commence. In addition, PREPA shall comply with Method 203, except that PREPA may conduct performance audits under Section 5.3 of Method 203 semi-annually instead of quarterly.

4. PREPA shall submit a written report to EPA of the results of all monitor performance specification evaluations conducted on the monitoring system(s) within 60 days of the completion of the tests. The monitoring systems must meet all the requirements of the applicable performance specification test in order for the monitors to be certified.

X. Performance Testing Requirements For Each Combustion Turbine

1. Within 60 days after achieving the maximum production rate of the combustion turbine, but no later than 180 days after initial startup as defined in 40 CFR Part 60.2, and at such other times as specified by the EPA, PREPA shall conduct performance tests for NO_x, CO and VOCs at the combustion turbines. All performance tests shall be conducted at base load conditions, 60% load conditions and/or other loads specified by EPA.
2. Three test runs shall be conducted for each load condition and compliance for each operating mode shall be based on the average emission rate of these runs.
3. At least 60 days prior to actual testing, PREPA shall submit to the EPA a Quality Assurance Project Plan detailing methods and procedures to be used during the performance stack testing. A Quality Assurance Project Plan that does not have EPA approval may be grounds to invalidate any test and require a re-test.
4. PREPA shall use the following test methods, or a test method which would be applicable at the time of the test and detailed in a test protocol approved by EPA:
 - a. Performance tests to determine the stack gas velocity, sample area, volumetric flow rate, molecular composition, excess air of flue gases, and moisture content of flue gas shall be conducted using 40 CFR Part 60, Appendix A, Methods 1, 2, 3, and 4.
 - b. Performance tests for the emissions of CO shall be conducted using 40 CFR Part 60, Appendix A, Method 10.
 - c. Performance tests for the emissions of NO_x shall be conducted using 40 CFR Part 60, Appendix A, Method 20
 - d. Performance tests for the emissions of VOCs shall be conducted using 40 CFR Part 60, Appendix A, Method 25A. PREPA may subtract methane/ethane emissions from the VOC emissions determined using Method 25A. Methane and ethane emissions shall be determined using 40 CFR Part 60, Appendix A, Method 18.
 - e. Performance tests for the visual determination of the opacity of emissions from the stack shall be conducted using 40 CFR Part 60, Appendix A, Method 9 and the procedures stated in 40 CFR Part 60.11.
5. Test results indicating that emissions are below the limits of detection shall be deemed to be in compliance.

6. Additional performance tests may be required at the discretion of the EPA or EQB for any or all of the above pollutants.
7. For performance test purposes, sampling ports, platforms and access shall be provided by PREPA on each of the combustion turbine units in accordance with 40 CFR Part 60.8(e).
8. PREPA shall submit a written report to EPA of the results of all emission testing within 60 days of the completion of the performance test.
9. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.

XI. Record keeping Requirements

1. Logs shall be kept and updated daily to record the following:
 - a. the hours of operation of each Westinghouse 501 distillate oil fired combustion turbine;
 - b. the amount of electrical output (MW) on an hourly basis from each Westinghouse 501 distillate oil fired combustion turbine;
 - c. the steam/fuel ratio at each Westinghouse 501 distillate oil fired combustion turbine to control NO_x emissions;
 - d. any adjustments and maintenance performed on each Westinghouse 501 distillate oil fired combustion turbine;
 - e. any adjustments and maintenance performed on monitoring systems; and
2. All monitoring records, fuel sampling test results, calibration test results and logs must be maintained for a period of five years after the date of record, and made available upon request. All rolling averages shall be computed on an hourly basis.
3. Compliance assurance with the NO_x and CO mass emission limit shall be demonstrated using data from the CEMs, fuel flow and equation 19.1 in 40 CFR Part 60 Appendix A Method 19. PREPA will comply with this condition in addition to the requirement to conduct performance tests.

PREPA SAN JUAN REPOWERING PROJECT
PERMIT CONDITIONS XII through XVIII ARE BASED ON PSD NETTING ANALYSES

XII Operating Requirements (based on PSD netting analyses)

Combustion Turbine(s)

1. Each Westinghouse 501 distillate oil fired combustion turbine unit shall continuously use upon start-up No. 2 distillate fuel oil which contains no more than:
 - a. 0.050 percent sulfur by weight; and
 - b. 0.10 percent nitrogen by weight.
2. Each Westinghouse 501 distillate oil fired combustion turbine unit shall be limited to a maximum heat input of 1,694 million British Thermal Units per hour (MMBtu/hr)(24 hour average), based upon higher heating value (HHV). Maximum total fuel use for both turbines shall be limited to 188,201,000 gallons/year. Daily compliance shall be determined by adding the total amount of gallons of fuel used by both turbines during each calendar day to the total gallons of fuel use by both turbines in the preceding 364 calendar days.
3. Both Westinghouse 501 distillate oil fired combustion turbines shall only be allowed to operate for up to 15,000 hours per year. Daily compliance shall be determined by adding the total amount of hours operated by both turbines during each calendar day to the total hours operated by both turbines in the preceding 364 calendar days.

Auxiliary Diesel Generator

The Auxiliary Diesel Generator shall continuously use upon start-up distillate fuel oil which contains no more than:

- a) 0.050 percent sulfur by weight
- b) 0.10 percent nitrogen by weight

Boiler Units 7,8,9 and 10

- a. Each existing boiler unit 7 through 10 shall use No. 6 oil or lighter.
- b. The sulfur content in the fuel oil shall not exceed 0.50% by weight.
- c. The maximum total fuel use in these four boiler units shall be limited to 173.1 million gallons per year.

Distillate Oil Storage Tanks

A fixed roof tank shall be used for the storage of distillate oil.

Cooling Towers:

1. The cooling tower drift shall be limited to less than or equal to 0.005% of the circulating flow using two stages of mist eliminators.
2. The mist eliminators shall be inspected every year for wear and tear and replaced pursuant to good operational practices.

XIII Emission limits (based on the PSD netting analyses):

(Emission values expressed as lbs/MMBtu are based on the higher heating value (HHV) of the fuel)

Each Combustion Turbine

1. Sulfur Dioxide (SO₂) (3-hour rolling average)
The SO₂ emissions shall not exceed 0.05 lbs/MMBtu.
2. Sulfuric Acid Mist (H₂SO₄)
The H₂SO₄ emissions shall not exceed 0.0077 lbs/MMBtu.
3. Particulate Matter (PM)
The PM emissions shall not exceed 0.041 lbs/MMBtu.
4. Particulate Matter < 10 microns (PM-10)
The PM-10 emissions shall not exceed 0.052 lbs/MMBtu
6. Lead (Pb):
The Pb emissions shall not exceed 9 E -06 lb/MMBtu.

Auxiliary Diesel Generator

1. Sulfur Dioxide (SO₂)
The SO₂ emissions shall not exceed 2.35 lbs/hr.
2. Particulate Matter < 10 microns (PM-10)
The PM-10 emissions shall not exceed 4.65 lbs/hr.

Boiler Units 7,8,9 and 10

1. The total NO_x emissions calculated as NO₂ from all four boiler units shall not exceed 1571 pounds per hour (lbs/hr) on a rolling 8-hour average basis. The potential to emit NO_x emissions from all four units shall be limited to 5,078 tons/year. PREPA shall meet these emission limits irrespective of nitrogen content of the no. 6 fuel oil.
2. The PM-10 emissions shall be limited to 0.0753 lbs/MMBtu.

3. The PM emissions shall be limited to 0.199 lbs/MMBtu.
4. The Sulfuric Acid emissions shall be limited to 0.0405 lbs/MMBtu.

Cooling Towers

Particulate Matter < 10 microns (PM-10) (one hour average) shall not exceed 0.0035 lbs/hour.

XIV Pollution Control Equipment (based on PSD netting analyses)

1. Each Westinghouse 501 distillate oil fired combustion turbine shall continuously use upon startup No.2 fuel oil in which:
 - a. the sulfur content does not exceed 0.050 % by weight; and
 - b. the nitrogen content does not exceed 0.10% by weight.
2. PREPA shall construct and maintain the facility in a manner that physically prevents blending of no. 2 fuel oil with any other oil at the facility. PREPA shall also label and color code the delivery system for the no. 2 oil.
4. PREPA shall install and operate at each existing boiler unit 7 through 10 a modified burner system. These burner systems shall be installed and operated at least four months prior to the startup of the combustion turbines. The modifications of these burners shall consist of replacing swirler assemblies, oil nozzles and plug assemblies or any equivalent technology that meets the level of reduction expected from this equipment and meet the NOx emission limit in XIII . PREPA shall notify EPA 60 days prior to installing equivalent technology.

XV. Fuel Sampling Requirements (based on PSD netting analyses)

1. PREPA shall receive/sample fuel oil for the combustion turbines and the boiler Units 7 through 10 as follows:
 - a. For Combustion Turbines- PREPA shall take a distillate fuel (no. 2 oil) oil sample prior to unloading the oil from the supplier. PREPA shall not receive any distillate fuel oil with a sulfur content greater than 0.050% by weight. Prior to unloading the oil from the supplier, PREPA shall verify that the sulfur content of the oil being delivered is no greater than 0.050% by weight by evaluating the fuel oil analyses provided by the supplier and by independently analyzing and confirming the sulfur content of the fuel oil. The distillate fuel oil shall also be analyzed for the nitrogen content.
 - b. For Boiler Units 7 through 10- PREPA shall sample no. 6 fuel oil for sulfur content upon delivery.

2. Compliance with the sulfur content standard shall be determined using the testing methods established in 40 CFR 60.335(d).
3. Compliance with the nitrogen content standard for the distillate oil to be used in the combustion turbines shall be determined using analytical methods and procedures that are accurate to within 5 percent and are approved by the Administrator to determine the nitrogen content of the fuel being fired.

XVI. Continuous Emission Monitoring (CEM) Requirements (based on PSD netting analyses)

1. Prior to the date of startup and thereafter, PREPA shall install, calibrate, maintain, and operate the following continuous monitoring systems in each of the combustion turbine exhaust stack.
 - a. A CEM to measure and record stack gas oxygen or CO₂ concentrations. The system shall meet all applicable EPA monitoring performance specifications (including but not limited to 40 CFR Part 60.13 and 40 CFR Part 60, Appendix B, Performance Specifications 3, and Appendix F).
 - b. A continuous monitoring system to measure and record fuel flow rate. The system shall meet all applicable EPA monitoring performance specifications.
2. At least four months prior to the date of startup of any combustion turbine and thereafter, PREPA shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEM) to measure and record stack gas NO_x (as measured as NO₂) concentrations in each of the boiler unit 7 through 10 exhaust stack. The system shall meet all applicable EPA monitoring performance specifications (including but not limited to 40 CFR Part 60.13 and 40 CFR Part 60, Appendix B, Performance Specifications 2, and Appendix F). In addition, PREPA shall install a CEM to measure and record stack gas oxygen concentrations meeting (including but not limited to 40 CFR Part 60.13 and 40 CFR Part 60, Appendix B, Performance Specifications 3, and Appendix F). PREPA shall also continuously measure and record fuel flow rate in lbs per hour. The CEMs shall be on line and in operation 95% of the time when the boilers are operating.
3. Not less than 90 days prior to the date of startup of each combustion turbine/burner modifications in the existing boiler units 7 through 10, PREPA shall submit a written report to EPA of a Quality Assurance Project Plan for the certification of the monitoring systems. Performance evaluation of the monitoring systems may not begin until the Quality Assurance Project Plan has been approved by EPA.
4. PREPA shall conduct performance evaluations of the COMS's, CEMS's and continuous monitoring systems during the initial performance testings required under Permit Condition XVII of this permit or within 30 days thereafter in accordance with the applicable performance specifications in 40 CFR Part 60, Appendix B, and 40 CFR Part

52, Appendix E. PREPA shall notify the Regional Administrator (RA) 15 days in advance of the date upon which demonstration of the monitoring system(s) performance will commence.

5. PREPA shall submit a written report to EPA of the results of all monitor performance specification evaluations conducted on the monitoring system(s) within 60 days of the completion of the tests. The monitoring systems must meet all the requirements of the applicable performance specification test in order for the monitors to be certified.

XVII. Performance Testing Requirements (based on PSD netting analyses)

1. PREPA shall conduct performance tests for each combustion turbine and each boiler unit 7 through 10 as follows:
 - a. Each Combustion Turbine- Within 60 days after achieving the maximum production rate of the combustion turbine, but no later than 180 days after initial startup as defined in 40 CFR Part 60.2, and at such other times as specified by the EPA, PREPA shall conduct performance tests for SO₂, H₂SO₄, PM, PM₁₀ and Lead at the combustion turbines. All performance tests shall be conducted at base load conditions, 60% load conditions and/or other loads specified by EPA.
 - b. Each Boiler Unit 7 through 10- Within 60 days after modifying burners, but no later than 180 days after the modified burners' startup as defined in 40 CFR Part 60.2, and at such other times as specified by the EPA, PREPA shall conduct performance tests for NO_x, PM, PM₁₀, and H₂SO₄ at each boiler unit exhaust stack. All performance tests shall be conducted at maximum load conditions, 60% load conditions and/or other loads specified by EPA.
2. Three test runs shall be conducted for each load condition and compliance for each operating mode shall be based on the average emission rate of these runs.
3. At least 60 days prior to actual testing, PREPA shall submit to the EPA a Quality Assurance Project Plan detailing methods and procedures to be used during the performance stack testing. A Quality Assurance Project Plan that does not have EPA approval may be grounds to invalidate any test and require a re-test.
4. PREPA shall use the following test methods, or a test method which would be applicable at the time of the test and detailed in a test protocol approved by EPA:
 - a. Performance tests to determine the stack gas velocity, sample area, volumetric flow rate, molecular composition, excess air of flue gases, and moisture content of flue gas shall be conducted using 40 CFR Part 60, Appendix A, Methods 1, 2, 3, and 4.
 - b. Performance tests for the emissions of NO_x shall be conducted using 40 CFR Part 60, Appendix A, Method 20.

- c. Performance tests for the emissions of SO₂ shall be conducted using 40 CFR Part 60, Appendix A, Method 8.
 - d. Performance tests for the emissions of H₂SO₄ shall be conducted using 40 CFR Part 60, Appendix A, Method 8.
 - e. Performance tests for the emissions of PM shall be conducted using 40 CFR Part 60, Appendix A, Method 5.
 - f. Performance tests for the emissions of PM₁₀ shall be conducted using 40 CFR Part 51, Appendix M, Method 201 (exhaust gas recycle) or Method 201A (constant flow rate), and Method 202. PM₁₀ emissions shall be the sum of noncondensable emissions determined using Method 201 or 201 A and condensable emissions determined using Method 202.
 - g. Performance tests for the emissions of Pb (lead) shall be conducted using 40 CFR Part 60, Appendix A, Method 12.
 - h. Compliance with the cooling tower PM/PM-10 emission limit shall be determined by multiplying the maximum cooling water circulation rate with cooling water's drift rate and total dissolved solids (TDS) concentration. The TDS shall be monitored once per day.
5. Test results indicating that emissions are below the limits of detection shall be deemed to be in compliance.
 6. Additional performance tests may be required at the discretion of the EPA or EQB for any or all of the above pollutants.
 7. For performance test purposes, sampling ports, platforms and access shall be provided by PREPA on each of the combustion turbine units in accordance with 40 CFR Part 60.8(e).
 8. PREPA shall submit a written report to EPA of the results of all emission testing within 60 days of the completion of the performance test.
 9. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.

XVIII. Record keeping Requirements (based on PSD netting analyses)

1. Logs shall be kept and updated daily to record the following:
 - a. the gallons of No. 2 fuel oil fired on an hourly basis at each Westinghouse 501 distillate oil fired combustion turbine and the auxiliary generator;

- b. the hours of operation of each Westinghouse 501 distillate oil fired combustion turbine and the auxiliary generator;
 - c. the sulfur and nitrogen content of fuel oil burned in each turbine and the auxiliary generator;
 - d. any adjustments and maintenance performed on each Westinghouse 501 distillate oil fired combustion turbine;
 - e. any adjustments and maintenance performed on monitoring systems;
 - f. all fuel sampling results; the distillate fuel oil supplier's and PREPA's analyses verifying that the sulfur content is no greater than 0.050%
 - g. the gallons of fuel oil fired on an hourly basis at each existing boiler unit 7 through 10;
 - h. the hours of operation of each existing boiler unit 7 through 10;
 - i. all calculations and information related to emission determinations
2. All monitoring records, fuel sampling test results, calibration test results and logs must be maintained for a period of five years after the date of record, and made available upon request. All rolling averages shall be computed on an hourly basis.

PREPA SAN JUAN REPOWERING PROJECT
PERMIT CONDITIONS XIX and XX APPLY
TO BOTH PSD AND PSD-NETTING RELATED CONDITIONS

XIX. Compliance Assurance

Combustion Turbine(s)

1. Capacity Restriction

(max fuel use of 188,201,000 gallons per year, 15,000 hours of operation per year and 12,548 gph-24 hr average)

- a. Daily compliance with the limit on fuel use shall be determined by adding the total amount of gallons of fuel used by both turbines during each calendar day to the total gallons of fuel use by both turbines in the preceding 364 calendar days. This fuel use shall not exceed 188,201,000 gallons.
- b. Daily compliance with the limit on number of hours of both combustion turbines shall be determined by adding the total amount of hours operated by both turbines during each calendar day to the total hours operated by both turbines in the preceding 364 calendar days. The total number of hours shall not exceed 15,000..
- c. Daily compliance with the maximum firing rate of 12,548 gallons per hour in each turbine shall be demonstrated by adding the total amount of fuel fired by each turbine every hour and adding the total amount of fuel fired by each turbine during the previous 23 hours and dividing this number by 24. The minimum firing rate of 8,644 gallons per hour shall be maintained in each turbine to demonstrate compliance with the requirement to operate the turbines at a minimum of 60% load except during startup and shutdown.

2. Startup/Shutdown

- a. The number of hours taken to startup and shutdown each turbine shall be recorded. A verifiable load data between zero and 60% shall be correlated with the number of hours for each startup and shutdown. The total number of startups and shutdowns shall be recorded and complied with on a calender-year basis.
- b. Continuous opacity monitoring system shall be operating during each period of startup and shutdown. Opacity readings shall not exceed 20%.
- c. PREPA shall comply with all mass emission limits except CO and NOx during startup and shutdown as summarized in conditions 3a, 3b, 3c and 3e below.
- d. The CO and NOx emissions during startup shall not exceed 323 lbs/hr and 263 lbs/hr respectively, calculated in the following manner: For each startup, PREPA

will monitor and record the total CO and NOx emissions (lbs) for initial 8 hours. PREPA shall sum up all CO and NOx emissions in lbs that occurred during initial 8 hours (including startup hours) and divide by 8 to obtain startup emission rate in lbs per hour.

The CO and NOx emissions during shutdown shall not exceed 323 lbs/hr and 263 lbs/hr respectively, calculated in the following manner: For each shutdown, PREPA will monitor and record the total CO and NOx emissions (lbs) for 8 hour period before a complete shutdown. PREPA shall sum up all CO and NOx emissions in lbs that occurred during prior 8 hours (including shutdown process time) and divide by 8 to obtain shutdown emission rate in lbs per hour.

CO and NOx emissions in pounds per hour shall be calculated as described below (Emission Limits in lbs/hr- condition 3 a and b).

3. Emission Limits in lbs/MMBtu and ppm

- a. Nitrogen Oxides- PREPA will continuously measure and record stack gas NOx concentrations in ppmvd using a CEM. The emission rate in ppmvd shall be measured and recorded every hour as an eight-hour rolling average. Monitored oxygen concentrations (vol % dry) will be used to convert NOx concentrations to emission rates (lbs/MMBtu) pursuant to equation 19.1 in EPA Method 19 (40 CFR Part 60 Appendix A). NOx emission rates in lbs/MMBtu will be calculated and recorded every hour as an eight-hour rolling average (lbs/MMBtu) and every day as a 365-day rolling average (tons/yr). Emission for both turbines will be summed. PREPA will comply with this condition in addition to the requirement to conduct a performance test.

Startup/Shutdown: The emission rate in lbs/hr will be determined and recorded for a 8-hour period for each startup and shutdown by multiplying the emission rate in lbs/MMBtu times the fuel flow (lbs/hr) times the fuel's typical heating value 18,536 Btu/lb. NOx emission rates will be calculated and recorded for each startup and shutdown as an eight-hour average in lbs/hr.

PREPA shall use a computerized data logger to record all emissions and emission rates.

- b. CO- PREPA will measure and record ppmvd by the CEMs continuously and determine emission in lbs/MMBtu every hour. PREPA shall demonstrate compliance with the CO mass emission limit in lbs/MMBtu by using data from the CEMs, fuel flow and equation 19.1 (with appropriate molecular weight modification) in 40 CFR Part 60 Appendix A Method 19. PREPA will comply with this condition in addition to the requirement to conduct a performance test. CO emissions will be calculated and recorded every hour as a three-hour rolling average (lbs/hr). PREPA will comply with this condition in addition to the requirement to conduct a performance test.

Startup/Shutdown: The emission rate in lbs/hr will be determined and recorded for a 8-hour period for each startup and shutdown by multiplying the emission rate in lbs/MMBtu times the fuel flow (lbs/hr) times the fuel's typical heating value 18,536 Btu/lb. CO emission rates will be calculated and recorded for each startup and shutdown as an eight-hour average in lbs/hr.

PREPA shall use a computerized data logger to record all emissions and emission rates.

- c. PM-10- Initial stack test is required within 180 days of the startup of this plant. PREPA shall conduct subsequent stack tests every 30-months. PREPA shall conduct weekly opacity observations at each emission point in accordance with 40 CFR Part 60, Method 9. The opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. Opacity as measured by Method 9 and by an Continuous Opacity Monitor shall not exceed 20%. All possible corrective actions shall be taken as soon as visible emissions are observed from the turbine stacks. PREPA shall maintain records of all corrective actions and the duration of visible emissions to verify compliance with PM-10 emissions.
- d. Sulfur Dioxide- PREPA shall calculate by 40 CFR Part 60, Method 19 the hourly sulfur dioxide emissions based on the average fuel sulfur content of the previous week, the hourly fuel flow and assuming that all sulfur gets converted to sulfur dioxide. This hourly emissions shall be added to previous two hours' emissions and divided by three. This 3-hour average shall not exceed 89.9 lbs/hour. PREPA shall use a computerized data logger to record all emissions and emission rates.
- e. VOC- Initial stack test is required within 180 days of the startup of this plant. PREPA shall conduct subsequent stack tests every 30-months.

Boilers (Units 7 through 10)

1. Maximum fuel use restriction

The maximum total fuel use in these four boiler units shall be limited to 173.1 million gallons per year. Daily compliance with the annual maximum fuel usage shall be determined by adding the total amount of gallons of fuel used by four boiler units during each calendar day to the total gallons of fuel use by those boiler units in the preceding 364 calendar days.

2. Emission limit in lbs/MMBtu and tons/year

Nitrogen Oxides- PREPA will continuously measure and record stack gas NOx concentrations in ppmvd using a CEM. Monitored oxygen concentrations (vol % dry) will be used to convert NOx concentrations to emission rates (lbs/MMBtu) pursuant to

equation 19.1 in EPA Method 19 (40 CFR Part 60 Appendix A). NOx emission rates will be calculated and recorded every hour as an eight-hour rolling average (lbs/hr) and every day as a 365-day rolling average (tons/yr). Emission for all four units will be summed. PREPA will comply with this condition in addition to the requirement to conduct a performance test.

PREPA shall use a computerized data logger to record all emissions and emission rates.

3. Sulfur content of no. 6 fuel oil

For Boiler Units 7 through 10- PREPA shall sample no. 6 fuel oil upon delivery and analyze for the sulfur content.

4. PM/PM-10

In addition to initial stack tests, PREPA shall conduct subsequent stack tests every 60-months. PREPA shall conduct weekly opacity observations at each emission point in accordance with 40 CFR Part 60, Method 9. The opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. Opacity as measured by Method 9 and by an Continuous Opacity Monitor shall not exceed 20%. All possible corrective actions shall be taken as soon as visible emissions are observed from the turbine stacks. PREPA shall maintain records of all corrective actions and the duration of visible emissions to verify compliance with PM-10 emissions.

Certification-Combustion Turbines and Units 7 through 10

A responsible PREPA official as defined under the title V of the Clean Air Act shall submit a yearly compliance certification to EPA and EQB as follows:

"I certify under penalty of law that I have personally examined and am familiar with the information contained in or accompanying this compliance certification submission; I certify that, based on my inquiry of those individuals immediately responsible for obtaining the information, the information is true, accurate and complete."

XX. Reporting Requirements

Each Combustion Turbine

1. PREPA shall submit a written report of all excess emissions to EPA for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each quarter and shall include the information specified below:
 - a. The magnitude of excess emissions computed in accordance with 40 CFR Part 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions.

- b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions for each turbine unit. The nature and cause of any malfunction (if known) and the corrective action taken or preventive measures adopted shall also be reported. For CO and NOx emission rates during the startup/shutdowns, report all emissions in lbs/MMBtu for each startup and shutdown calculated during that quarter.
- c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
- d. When no excess emissions have occurred or the monitoring systems have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
- e. Results of quarterly monitor performance audits, as required in 40 CFR Part 60, Appendix F (including the Data Assessment Report) and all reporting requirements in 40 CFR 60.7 including the submission of excess emissions and CEMs downtime summary sheets
- f. For the purposes of this PSD Permit, excess emissions indicated by monitoring systems shall be considered violations of the applicable emission limits.
- g. Any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emission limit stated in Permit Condition VII and XIII of this permit and actions taken on any unit must be reported by telephone within 24 hours to:

Chief, Air Permit Division
 Puerto Rico Environmental Quality Board
 P.O. Box 11488, Santurce, Puerto Rico 00910
 (787) 767-8071

- h. In addition, the U. S. EPA's Caribbean Environmental Protection Division and Puerto Rico Environmental Quality Board (EQB) shall be notified in writing within fifteen (15) days of any such failure. This notification shall include: a description of the malfunctioning equipment or abnormal operation; the date of the initial failure; the period of time over which emissions were increased due to the failure; the cause of the failure; the estimated resultant emissions in excess of those allowed under Condition VII and XIII of this permit; and the methods utilized to restore normal operations. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause.
2. For the purpose of reporting required pursuant to 40 CFR Section 60.7 (New Source Performance Standards), periods of excess emissions that shall be reported include:

Nitrogen Oxides- Any one-hour period during which the average steam-to-fuel, as measured by continuous monitoring system, falls below the steam-to-fuel ratio determined to demonstrate compliance with 40 CFR Section 60.332 by the performance test required in 40 CFR Section 60.8. Each report shall include the average fuel consumption, ambient conditions, gas turbine load, the periods of excess emissions, and graphs or figures developed under 40 CFR Section 60.335(a).

3. Any period during which fuel sulfur content exceeds 0.050 % and fuel nitrogen content exceeds 0.10% shall be reported immediately to the EQB.

Each Boiler Unit 7 through 10

1. PREPA shall submit a written report of all excess emissions to EPA for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each quarter and shall include the information specified below:
 - a. The magnitude of excess emissions computed in accordance with 40 CFR Part 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions.
 - b. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
 - c. In addition to the reporting pursuant to XXI-2, all reports related to boiler units 7 through 10 shall be submitted to:

Chief, Air Permit Division
Puerto Rico Environmental Quality Board
P.O. Box 11488, Santurce, Puerto Rico 00910

XXI. Other Requirements

1. PREPA shall meet all other applicable federal, state and local requirements, including but not limited to those contained in the Puerto Rico State Implementation Plan (SIP), the General Provisions of the New Source Performance Standards (NSPS) (40 CFR Part 60, Subpart A), and the NSPS for Stationary Gas Turbines (40 CFR, Part 60, Subpart GG).
2. All reports and Quality Assurance Project Plans required by this permit shall be submitted to:

Director, Caribbean Environmental Protection Division
U.S. Environmental Protection Agency
Centro Europa Building, Suite 417
Ponce de Leon Avenue
San Juan, Puerto Rico 00907

3. Copies of all reports and Quality Assurance Project Plans shall also be submitted to:

- | | |
|---|--|
| a. Region II CEM Coordinator
U. S. Environmental Protection Agency
Air and Water Q/A Team
Monitoring & Assessment Branch
2890 Woodbridge Avenue - MS - 220
Edison, New Jersey 08837-3679 | b. Director, Air Permits Division
Puerto Rico Environmental
Quality Board
P.O. Box 11488
San Juan, Puerto Rico 00910 |
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