UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

JAN 0 3 2001

Mr. Raymond L. George
Executive Director
Virgin Islands Water and Power Authority
St. Thomas, U.S. Virgin Islands 00804

Re: Prevention of Significant Deterioration of Air Quality (PSD)
Final Permit for Unit 22 at the Krum Bay Facility

Dear Mr. George:

On July 27, 1999, the United States Environmental Protection Agency (EPA), Region 2 Office, received a letter from Mr. Gregory Rhymer, Manager of Environmental Affairs of the Virgin Islands Water and Power Authority (VIWAPA), requesting EPA's review of a PSD application dated June 9, 1999. This PSD application was submitted for a new 24 megawatts (MW) simple cycle oil-fired gas turbine proposed for construction at VIWAPA's Krum Bay Generating Station at St. Thomas, U.S. Virgin Islands.

On July 28, 2000, EPA issued a preliminary determination, subject to public review, to approve the PSD application. The public review period, which was initiated by the publication of an EPA public notice in the St. Thomas Daily News, started on September 13, 2000 and concluded on October 13, 2000. During the public review period, EPA received comments from you concerning the definition of maximum load and excess emissions during start-up, shutdown, and malfunction. EPA reviewed your comments and has amended the permit as appropriate.

The EPA concludes that this final permit now meets all applicable requirements of the PSD regulations codified at 40 CFR §52.21 and the Clean Air Act (the Act). Accordingly, I hereby approve VIWAPA's PSD permit for unit 22 to be located at the St. Thomas station. This letter and its attachments 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 found in Enclosure II. Enclosure III contains the projected air quality impacts of this project and Enclosure IV contains EPA's response to your comments on the draft permit.

This final agency decision may be challenged under the Consolidated Permit Regulations, codified at 40 CFR Part 124 which apply to EPA's processing of this permit decision. Specifically, 40 CFR §124.19 established the following procedures for administrative appeal of final PSD permit decisions. Any person who filed comments on the draft permits may petition the Environmental Appeals Board in Washington, D.C. to review any condition of the permit decision. In addition, any person who failed to file comments on the draft permit may petition for administrative review only to the extent of changes from the draft to the final permit. Any petition for review under this part must be made within thirty (30) days of the service of notice of the final permit decision by the Regional Administrator. The petition for review shall include a statement of the reasons supporting that review and shall adhere to the standards outlined in 40 CFR §124.19(a)(1) and (2).

All persons requesting administrative review must file the original and one copy of the petition for review with the Environmental Appeals Board at the following address:

For Regular Mail:

U.S. Environmental Protection Agency
Environmental Appeals Board (MC-1103B)
401 M Street, SW
Washington, D.C. 20460

For Hand-Carried and Express Mail:

U.S. Environmental Protection Agency
Environmental Appeals Board (MC-1103B)
Westory Building
607 14th Street, NW
Suite 500
Washington, D.C. 20005

Telephone number: (202) 501-7060
Fax number: (202) 501-7580

A copy of the administrative review request must also be sent to:

Steven C. Riva, Chief
Permitting Section
Air Programs Branch
U.S. Environmental Protection Agency
Region 2
290 Broadway, 25th Floor
New York, New York 10007-1866
(212) 637-4074

For purposes of judicial review under the Act, final agency action occurs when a final PSD permit is issued or denied and the administrative review procedures are exhausted. Notice of the Agency's final action with respect to this permit will be published in the Federal Register. Judicial review of this final action is available by the filing of a petition for review in the United States Court of Appeals for the appropriate circuit within 60 days of the date of the Federal Register notice. 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.

Since comments requesting changes to the draft permits were received and changes were made, this final permit will become effective 30 days after the service of notice unless review is requested under 40 CFR §124.19. If a petition for review of the final agency action is filed, the permit will not become effective until a decision on the petition is rendered by the Environmental Appeals Board.

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,

Jeanne M. Fox
Regional Administrator

Enclosures

cc: Mr. Hollis Griffin
Virgin Islands Department of Planning
& Natural Resources

Mr. Michael E. Lukey, P.E.
Pacific Environmental Services, Inc.

ENCLOSURE I

PROJECT DESCRIPTION

The Virgin Islands Water and Power Authority (VIWAPA) is proposing a modification for its Krum Bay generating station in St. Thomas, U.S. Virgin Islands. This project includes the construction of a new unit, designated Unit 22, a 24 megawatts (MW) United Technologies FT8-1 Power PAC gas turbine. Unit 22 will operate under simple cycle mode, without any secondary heat recovery. Unit 22 will burn No. 2 fuel oil with a maximum sulfur content of 0.2% sulfur by weight. Due to the need for additional increments for PM_{10} and SO_2, VIWAPA has agreed to 1) permanently shut down existing Units 9 and 10; 2) reduce the maximum sulfur content of the No. 6 fuel oil to be burned in Units 11 and 13 from 0.7 percent to 0.56 percent; and 3) reduce the maximum ash content of the waste oil to be burned in Units 11 and 13 from 8 percent to 5 percent.

The VIWAPA St. Thomas facility is an existing major stationary source. Any modification to an existing major stationary source resulting in a significant net emissions increase of certain pollutants would be subject to PSD review. "Significant" is defined in the PSD regulations codified at 40 CFR Part 52.21(b)(23). The proposed Unit 22 is PSD affected for nitrogen oxides (NO_x), sulfur dioxides (SO_2), carbon monoxide (CO), particulate matter less than10 microns (PM_{10}), and volatile organic compounds (VOCs). The potential emissions from Unit 22 are tabulated below:

Pollutants	PSD Significance Levels	Proposed Unit 22 Annual Emissions
NOx	40 TPY	184 TPY
SO2	40 TPY	228 TPY
CO	100 TPY	149 TPY
PM10	15 TPY	99 TPY
VOCs	40 TPY	45 TPY

VIWAPA will employ the best available control technology (BACT) to control the pollutants described above. NO_x emissions shall be controlled through the use of water injection. SO_2 and PM_{10} emissions will be controlled through the use of low sulfur distillate fuel oil. CO and VOC emissions will be controlled by implementing good combustion practices and performing intensive maintenance.

The table below summarizes the units that are covered by this permit:

Unit	Unit Type	Maximum Fuel Use	Maximum Fuel Rate
No. 9	3 MW Diesel Generator (1963)	0 gallon per year (Shut down for credits)	0
No. 10	7.5 MW Steam boiler (1966)	0 gallon per year (Shut down for credits)	0
No. 11	18 MW Steam Boiler (1968)	See Unit 13	14,378 lb/hr
No. 13	35 MW Steam Boiler (1970)	Shares with Unit 11 a combined total of 42,800,000 gal/yr of No. 6 oil with no more than 0.56% sulfur. Shares with Unit 11 a combined total of 200,000 gal/yr of waste oil with a maximum concentration of 5% ash, 8% sulfur, and 0.4% Chlorine and an annual average of 0.05% lead.	26,000 lb/hr
No. 22	24 MW Gas Turbine	15,452,640 gal/yr of No. 2 oil with no more than 0.2% sulfur.	1,760 gal/hr

ENCLOSURE II

PERMIT CONDITIONS

I. Unit 22 (24 MW United Technologies FT-8-1 Power PAC unit)

A. Fuel Oil Usage Limit

1. The total fuel usage for Unit 22 shall not exceed 15,452,640 gallons during any consecutive 365-day period. Daily compliance shall be determined by adding the amount of fuel oil used during each calendar day to the total quantity of fuel oil used in the preceding 364 calendar days.

2. The maximum heat input shall not exceed 247 million British thermal units per hour (MMBTU/hr).

3. The maximum fuel consumption rate shall not exceed 1,764 gallons per hour (gal/hr).

4. The type of fuel is limited to No. 2 fuel oil or distillate fuel oil with a sulfur content of no more than 0.2% sulfur by weight and a nitrogen content of no more than 0.015% nitrogen by weight.

5. Tests for percent sulfur and percent nitrogen in fuel shall be conducted using testing methods established in 40 CFR 60.335.

6. The maximum capacity of Unit 22 shall be defined as the maximum energy output in megawatts (MW) as determined and fixed during the initial performance tests when the maximum amout of fuel is combusted.

7. Percent load shall be determined by the ratio of the actual load in MW to the maximum capacity in MW. The maximum capacity of Unit 22 shall be determined in accordance with Condition (I)(A)(6) above.

B. Sulfur Dioxide (SO_2) Emission Limit

1. BACT is the use of No. 2 fuel oil with a sulfur content of no more than 0.2% sulfur by weight.

2. The sulfur dioxide emissions shall not exceed 52.1 pounds per hour (lbs/hr) at all times.

3. Initial compliance with the above emission limit shall be demonstrated by stack tests using EPA Reference Method 20 (40 CFR 60 Appendix A). The initial stack test shall be conducted at various loads. These tests shall be conducted according to a written protocol approved by EPA prior to any testing. Three test runs shall be conducted at various load conditions and compliance shall be based on the average SO_2 emission rate of these test runs. VIWAPA shall demonstrate subsequent compliance with the SO_2 emission rate by calculating emissions based on average weekly fuel sulfur content and flow rate. In these calculations, VIWAPA shall assume that all sulfur is converted to SO_2.

C. Nitrogen Oxides (NO_x) Emissions

1. BACT is the use of water injection to control NO_x emissions. VIWAPA must use water injection at all times except when operating at low load (less than 25% capacity) as reserve.

2. NO_x Emission Limits

   NO_x emissions shall not exceed the most stringent of the following at any time:

   a) NO_x emissions shall not exceed on a 24-hour rolling average basis, 42 lbs/hr calculated as NO_2; or

   b) Concentration of NO_x in the exhaust gas shall not exceed 42 parts per million by volume (ppmdv), on a dry basis, corrected to 15% oxygen (as determined by continuous emissions monitoring).

3. The NOx emission rate shall be tested using EPA Reference Method 20 (see 40 CFR Part 60 Appendix A). These tests shall be conducted according to a written protocol approved by EPA prior to any testing. Three test runs shall be conducted at each of four different load conditions (including the minimum point in the range and peak load) and compliance shall be based on the average NO_x emission rate of these test runs.

4. The water-to-fuel ratio for various load conditions will be established during the initial performance testing and will be incorporated into VIWAPA's operating permit issued by the Virgin Islands Department of Planning and Natural Resources.

D. Carbon Monoxide (CO) Emissions

1. BACT for CO is the use and maintenance of good combustion practices at all times.

2. Emission Limits

CO emissions shall not exceed the most stringent of the following at any time:

a) CO emissions shall not exceed 34 lbs/hr; or

b) CO emissions at various percent load levels shall not exceed the following concentrations corrected to 15% oxygen as determined by continuous emission monitoring (see Condition (I)(A)(7) for the definition of percent load):

Percent Load	CO Concentration (ppmdv @ 15% O_2)
0 - 24	350
75 - 99	16
100	10

3. For any 8-hour period, Unit 22 shall not operate below a load factor of 15 percent. Unit 22 shall not be operated at synchronous idle for more than a total of 6 hours per day.

4. The CO mass emission rates at various loads will be tested using EPA Reference Method 10 (40 CFR Part 60, Appendix A). These tests shall be conducted according to a written protocol approved by EPA prior to any testing. Three test runs shall be conducted for each of the three load conditions (percent loads) indicated in the above table and compliance for each operating mode shall be based on the average CO emission rate of these three test runs.

E. Particulate Matter/PM_{10} Emissions

1. BACT for PM/PM_{10} is the use and maintenance of good combustion practices at all times.

2. Emission Limits

a) The PM emissions shall not exceed 9 lbs/hr.

b) The PM_{10} emissions shall not exceed 22.6 lbs/hr.

3. The PM emission rate shall be determined using EPA Reference Method 5. The PM_{10} emission rate shall be determined using EPA Reference Method 201/201A and 202 (40 CFR Part 51, Appendix M). These tests shall be conducted according to a written protocol approved by EPA prior to any testing. Three test runs shall be conducted for each of the three load conditions (0 - 24, 75 - 99 , and 100 percent load) and compliance shall be based on the average emission rate of these three test runs.

F. Opacity

1. The opacity shall not exceed 17% as determined by continuous monitoring except for 3 minutes in any consecutive 30-minute period during which 40% shall not be exceeded.

2. 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 in accordance with 40 CFR Part 60.11.

G. VOC Emissions

1. BACT for VOC is the use and maintenance of good combustion practices at all times.

2. Emission Limits

VOC emissions shall not exceed the most stringent of the following at any time:

a) VOC emissions shall not exceed 10.3 lbs/hr measured as carbon; or

b) VOC emissions shall not exceed the following concentrations at the various percent load levels corrected to 15% oxygen (see Condition (I)(A)(7) for the definition of percent load):

Percent Load	Concentration of VOC (ppmdv @ 15% O_2)
0 - 24	95
75 - 99	12
100	8

3. The emission rates of VOC will be tested using EPA Reference Method 25A (40 CFR Part 60, Appendix A). VIWAPA may subtract methane and ethane emissions using EPA Reference Method 18 from the Method 25A VOC emission determination. These tests shall be conducted according to a written protocol approved by EPA prior to any testing. Three test runs shall be conducted for each of the three load conditions (percent loads) indicated in the above table and compliance shall be based on the average VOC emission rate of these three test runs.

4. EPA reserves the right to require CEM for VOC in the future.

II Existing Units

A. Units 9 and 10

Units 9 and 10 shall be dismantled and permanently removed from the Krum Bay facility prior to the initial start-up of Unit 22.

B. Units 11 and 13

1. The following changes are made to Attachment II of the August 24, 1994 PSD permit:

   a) VIWAPA shall use a multiclone to control the emissions of PM_{10} from Unit 13. The efficiency of the multiclone shall be maintained at no less than 80% by maintaining a pressure drop of one (1) inch of water across the multiclone at all times.

   b) VIWAPA shall use only No. 6 fuel oil in which the sulfur content does not exceed 0.56 percent by weight . Fuel usage records containing the sulfur content and the number of gallons burned on an hourly basis at the two units shall be maintained for a period of at least five years.

   c) VIWAPA shall use not more than 200,000 gallons of waste-oil ("used" oil, including "off-spec" oil) during any period of 365 consecutive days. Daily compliance for waste-oil use shall be determined by adding the amount of waste-oil used during each day to the total quantity of the waste-oil used in the preceding 364 calendar days.

   d) VIWAPA shall implement a program to "blend" the fuel oil and the waste oil, so as to ensure that the fuel stream being fed into Unit 11 and/or Unit 13 has a sulfur content less than or equal to 1.5% by weight. VIWAPA shall monitor the sulfur content of the "blended" fuel oil/waste oil mixture to ensure that the sulfur content is not more than 1.5% by weight. VIWAPA shall not accept any shipment of waste oil that exceeds the following concentrations:

Constituent		Maximum Concentration (%)
Ash	Maximum	5.0
	Annual Average	2.5
Sulfur	Maximum	8.0
	Annual Average	2.0
Lead (Annual Average)		0.05
Chlorine (Maximum)		0.4

e) The maximum ash content of waste oil shall not be more than 5% and the maximum sulfur content shall not be more than 8%.

2. All other conditions that apply to Units 11 and 13 as specified in the August 24, 1994 PSD permit remain unchanged and in full force.

C. Unit 14

Unit 14 shall not be operated unless one of the following units is out of service: Unit 11, Unit 13, Unit 15, Unit 18, or Unit 22.

III Testing Requirements

VIWAPA shall conduct all performance tests for Unit 22 in accordance with the following:

A. Within 60 days after achieving shakedown, but no later than 180 days after initial startup as defined in 40 CFR Part 60.2, VIWAPA shall conduct performance stack tests on Unit 22 for SO_2, NO_x, PM, PM_{10}, CO, VOCs, and opacity in accordance with the test methods published in 40 CFR Part 60, Appendix A and 40 CFR Part 51, Appendix M.

B. At least 60 days prior to the actual performance stack test, VIWAPA shall submit to the EPA for approval a Quality Assurance Project Plan (stack test protocol). The Quality Assurance Project Plan shall contain a detailed description of the sampling point location, sampling equipment, sampling and analytical procedures, data reporting forms, quality assurance procedures and operating conditions for such tests must be submitted to the EPA. A Quality Assurance Project Plan that does not have EPA approval may be grounds to invalidate any test and require a re-test.

C. Notification of the stack test must be given to EPA and VIDPNR at least 30 days prior to actual testing.

D. Provide permanent sampling and testing facilities as may be required by the EPA to determine the nature and quantity of emissions from Unit 22. Such facilities shall conform with all applicable laws and regulations concerning safe construction and safe practice.

E. Test results indicating that emissions are below the limits of detection shall be deemed to be in compliance.

F. Additional performance tests may be required at the discretion of the EPA for any or all of the above pollutants.

G. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purposes of a performance test.

H. Start-up for Unit 22 is defined as the period beginning with lightoff of the combustion turbine as initiated by the start cycle, followed by acceleration to 3600 revolutions per minute (RPM), closing of the breaker, and automatic loading to the pre-selected level at the pre-selected loading rate. The start-up process shall not exceed 20 minutes in duration.

I. Shutdown for Unit 22 is defined as the period of time beginning with unloading of the combustion turbine to zero power as initiated by the shutdown cycle, followed by the breaker opening, and deceleration to "gas generator idle" for a five minute cool down before fuel flow is shut off. The shutdown process shall not exceed 20 minutes in duration.

IV Monitoring Requirements

A. Unit 22

1. Within 180 days of the initial startup of Unit 22 and thereafter, VIWAPA shall install, calibrate, maintain and operate continuous emission monitors or monitoring systems to measure stack emissions and operating parameters indicated below:

Continuous Emission Monitors (CEMs):	CO, O_2, NO_x, and opacity.
Continuous Monitors:	Volumetric stack gas flow rate, stack temperature, water-to-fuel ratio, and fuel flow rate.

2. Not less than 90 days prior to the date of startup of Unit 22, VIWAPA must submit to the EPA a Quality Assurance Project Plan for the certification of the CEM systems. CEM performance testing may not begin until the Quality Assurance project Plan has been approved by EPA.

3. Within 180 days of the initial startup of Unit 22, VIWAPA shall install, calibrate and test each continuous emission monitor (CEM) and recorder listed above. Monitors must comply with EPA performance and siting specifications pursuant to 40 CFR Part 60, Appendix B, Performance Specifications 1-4. Equipment specifications calibration and operating procedures, and data evaluation and reporting procedures shall be submitted to EPA in a performance Specification Test protocol. EPA reserves the right to require the auditing of the CEMs by independent agents. Data collected from the CEMs will be quality controlled and quality assured in accordance with the procedures specified in 40 CFR Part 60 Appendix F and Method 203.

4. Not less than 90 days prior to the date of startup, VIWAPA must submit to the EPA a Quality Assurance Project Plan for the certification of the CEM systems. CEM performance testing may not begin until the Quality Assurance Project Plan has been approved by EPA.

5. VIWAPA shall submit a written report to EPA of the results of all monitor performance specification tests conducted on the monitoring system(s) within 45 days of the completion of the tests. The continuous emission monitors must meet all the requirements of the applicable performance specification test in order for the monitors to be certified.

6. Logs shall be kept and updated in the specified timeframe to record the following:

   a) the amount of water in gallons per hour used to control NO_x emissions and the water-to- fuel ratio on an hourly basis;

   b) the No. 2 fuel oil burned in gallons on an hourly and annual (rolling 365-day) basis;

   c) hours of operation for Unit 22 on a daily basis;

   d) exceedance of emission limits determined by continuous monitoring;

   e) the sulfur and nitrogen content of all fuel oil burned and the SO_2 emission calculations; and

   f) the amount of electrical output in MW on an hourly basis.

B. Existing Units 11 and 13

Log shall be kept and updated in the specified time frame to record the following:

1. the sulfur content of each shipment of No. 6 fuel oil received;

2. the amount of No. 6 fuel oil burned in gallons on an hourly and annual (rolling 365-day) basis,

3. the content of sulfur, ash, lead, and chlorine of all waste-oil burned and the list of generators for each waste-oil shipment received (to be provided by the waste-oil generator or transporter);

4. the amount of waste oil burned in gallons on an hourly and annual (rolling 365-day) basis;

5. the hourly blending ratio of fuel-oil to waste-oil in Unit 11 and 13 when waste-oil is burned;

6. the sulfur content of each blended mixture of No. 6 fuel oil and waste oil to be burned in Units 11 and 13;

7. the amount of electrical output in MW on an hourly basis; and

8. the pressure drop across the multiclone once per day.

C. Unit 14

Whenever Unit 14 is operated, a log shall be kept to record the following information:

1. which existing unit is being shut down and replaced by Unit 14;

2. the sulfur content of No. 2 fuel oil burned;

3. the amount of No. 2 fuel oil burned on an hourly and annual (rolling 365-day) basis;

4. the hours of operation on a daily basis; and

5. the electrical output in MW on an hourly basis.

D. All continuous monitoring records and logs specified in this section must be maintained for at least five years from the date of measurement and made available upon request.

V. Reporting Requirements

A. Results of emission testing must be submitted to EPA within 60 days after completion of the performance tests.

B. VIWAPA shall submit a written report of all excess emissions to EPA for every calendar quarter. All quarterly excess emission reports shall be postmarked by the 30th day following the end of each quarter. The information specified below shall be included in the reports:

1. Specific identification of each period of excess emissions that occurred during start-ups, shutdowns, and malfunctions of the affected facility.

2. The nature and cause of any malfunction (if known) of the affected facility and the corrective action taken or preventative measures adopted.

3. For apparent excess emissions due to CEM malfunction, provide 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 repair or adjustments.

4. When no excess emissions have occurred or the CEM system has not been inoperative, repaired, or adjusted, such information shall be stated in the report.

C. Emissions in excess of the applicable concentration limits (in ppmdv corrected to 15% oxygen) listed under Conditions (I)(C), (I)(D) and (I)(G) of this permit for Unit 22 during start-ups and shutdowns shall not be considered violation of the applicable concentration limits. See Condition (III)(H) and (III)(I) for the definition of start-up and shutdown for Unit 22.

D. Upsets/Malfunctions:

1. Malfunction means any sudden, infrequent, and not reasonably preventable failure of an air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

2. All upsets/malfunctions of any of the units (including but not limited to Units 11, 12, 13, 14, 15, 18, 22 and the HRSG) must be reported by telephone within 24 hours to the VIDPNR office listed above. A follow-up letter describing the incident, the amount of down time and the corresponding action taken must be submitted within 5 calendar days to Director, Division of Environmental Protection of the VIDPNR at the address listed above. A copy shall be submitted to Director, Caribbean Environmental Protection Division of the U.S. Environmental Protection Agency, Region II Office at the address listed below.

E. Report any deviations that occur during any one hour average when the water to fuel ratio falls below the level needed to maintain compliance as established in Condition (I)(C)(4). These deviations should be made part of the excess emission reports.

F. The quarterly excess emission reports required in this section shall be sent to the following EPA and VIDPNR personnel:

Region 2 CEM Coordinator
AWQAT MS-220
Monitoring and Management Branch
U.S. EPA Region 2
2890 Woodbridge Avenue
Edison, New Jersey 08837

Director, Caribbean Environmental Protection Division
U.S. Environmental Protection Agency
Region II Office
Centro Europa Building, Suite 417
1492 Ponce De Leon Avenue
Santurce, PR 00907-4127
(787) 729-6951

Director, Division of Environmental Protection
Virgin Islands Department of Planning and Natural Resources
Cyril E. King Airport, 2nd Floor
St. Thomas, U.S. VI 00802
(340) 774-3320

G. All emission reports, testing reports and start-up notifications required under this permit shall be submitted to Director, Caribbean Environmental Protection Division, U.S.EPA, Region II at the address listed above. Three copies of the stack test report must be submitted within 60 days after completion of the test.

H. In each report quarter, 95% quality data availability shall be maintained for all opacity monitors and 95% quality data availability shall be maintained for all gaseous monitors. There shall be a quality assurance plan coupled with a calibration and maintenance program.

VI Other Permit conditions

A. This facility is subject to the General Provisions of the NSPS (40 CFR Part 60, Subpart A), and the NSPS for Stationary Gas Turbines (40 CFR Part 60, Subpart GG).

B. VIWAPA shall meet all other applicable federal, state, and local requirements, including those contained in the Virgin Islands State Implementation Plan (VISIP).

ENCLOSURE III

Virgin Islands Water and Power Authority
Unit 22 Gas Turbine Project
Air Quality Impacts

ANALYSIS FOR NAAQS COMPLIANCE

Pollutant	Averaging Time	Monitored Background (ug/m^3)	Modeled Cumulative Impacts (ug/m^3)	Total Impact (ug/m^3) (Modeled + Background)	NAAQS (ug/m^3)
PM_{10}	Annual 24-hour	28 97	7 22	35 119	50 150
SO_2	Annual 24-hour 3-hour	5 -- --	45 283 1239	50 283 1239	80 365 1300
NO_x	Annual	8	31	39	100
CO	8-hour 1-hour	6,367 15,463	795 6,066	7,162 21,529	10,000 40,000

ANALYSIS FOR PSD INCREMENT COMPLIANCE

Pollutant	Averaging Time	Impacts from All Increment Consuming Sources (ug/m^3)	Allowable PSD Increment (ug/m^3)
PM_{10}	Annual 24-hour	5 15	17 30
SO_2	Annual 24-hour 3-hour	10 46 413	35 91 512
NO_x	Annual	4	25

[1]NAAQS and PSD increment analysis is a modeled cumulative analysis which consists of impacts from Unit 22, and other existing sources. The ambient monitored data was obtained from past PSD permit applications where the background concentration accounts for a conservative estimate of all minor and distant sources not specifically modeled.

ENCLOSURE IV

Response to Comments

Introduction

The Region 2 Office of the U.S. Environmental Protection Agency (EPA) held a public comment period from September 13, 2000 to October 13, 2000 with respect to the Prevention of Significant Deterioration of Air Quality (PSD) permit application submitted by the Virgin Islands Water and Power Authority (VIWAPA) for the construction of a 24-megawatt (MW) gas turbine (designated Unit 22) in St. Thomas, U.S. Virgin Islands. During the 30-day public comment period, EPA received comments only from VIWAPA. Below is the EPA response to comments submitted by VIWAPA on October 13, 2000.

Comment 1

The percent load at which VOC and CO emission limits were established in the PSD permit should be calculated as the ratio of the actual MW load to the rated (or design) MW capacity of the unit as opposed to the ratio of the actual MW load to the maximum capacity of the unit. VIWAPA is concerned that variations in weather conditions and fuel characteristics may affect the value of maximum capacity on the day of testing which in turn would affect the calculation of the percent load and compliance with the proper emission limits.

Response 1

There are two parts to this comment. First, by suggesting that percent loads should be calculated in terms of MW and not the amount of fuel burned as stipulated in the draft PSD permit, VIWAPA is in essence submitting that percent loads should be based on energy output rather than heat input. EPA accepts VIWAPA's comments in this regard and added Condition (I)(A)(7) to clearly define "percent load" in the final permit.

With respect to the second part of this comment, EPA disagrees that the rated capacity should be used as the basis for determining percent load because it is not a true value. The unit cannot achieve the rated capacity at any time. However, EPA agrees with VIWAPA that the value of maximum capacity should not vary with time, age, or weather. Therefore, EPA added Condition (I)(A)(6) in the final permit to clarify that the maximum capacity of the unit shall be determined during the initial performance test and be used for calculating percent loads.

Comment 2

VIWAPA wants Unit 22 to be allowed to exceed the mass, concentration, and opacity limits during start-ups, shutdowns, or malfunctions because the vendor has no emission or opacity data for these periods.

Response 2

While EPA understands that emissions generated during periods of start-ups and shutdowns do not represent normal operation, such excursions cannot be excused from meeting the pounds per hour limit for any pollutants and must comply with the opacity limit at all times. Since start-ups and shutdowns occur over a brief period of about 3 minutes as represented in VIWAPA's comment letter, there should not be any concerns over meeting a mass limit that is averaged over 60 minutes. However, EPA agrees with VIWAPA that the concentration limits (in ppmdv corrected to 15% oxygen) for NOx, CO and VOC would not apply during start-ups and shutdowns and added Condition (V)(C) to reflect that. Conditions (III)(H) and (III)(I) are also added in the final permit to define what constitutes start-up and shutdown for Unit 22.

With respect to malfunction situations, EPA disagrees with VIWAPA that a provision should be included in the permit to excuse excess emissions due to malfunctions. Rather, EPA finds it more appropriate for the permitting authorities to investigate such incidents and handle them appropriately under their enforcement programs. To clarify what constitutes a malfunction, EPA added a definition in Condition (V)(D).

The opacity limit as currently stated in the permit already allows for an excursion of a 3-minute period during which the opacity could be as high as 40%. There is no need to allow additional variance from the opacity standard.

Other Changes

1. "Prior to the initial start-up of Unit 22" has been added to Condition (II)(A) to ensure that Units 9 and 10 will be taken out of service permanently before Unit 22 starts operation as represented in the application.

2. Other changes to the final permit included typographical corrections and re-numbering the provisions under Condition (II), (III), and (V), respectively without any change in substance.