

NOV 27 2000

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Mr. Gregory Rhymer  
Environmental Manager  
Virgin Islands Water and Power Authority  
P.O. Box 1450  
St. Thomas, U.S. Virgin Islands 00804

Sub: Prevention of Significant Deterioration of Air Quality (PSD) Final Permit for  
North Shore, St. Croix facility

Dear Mr. Rhymer:

On December 16, 1996, Virgin Islands Water and Power Authority (VIWAPA) submitted an application to revise the PSD permits for power generating Units 16, 17, 19 and 20 at your North Shore facility in St. Croix. Based on the review of the information you provided through January 28, 1999, we issued a draft PSD permit on January 13, 2000. The public comment period ended on March 6, 2000. VIWAPA, the only commenter, submitted about 15 comments. Your comments pertain primarily to the proposed revisions to the VOC emission limits based on the test results and various testing protocols.

EPA reviewed the concerns raised by VIWAPA and made changes to this draft permit. The proposed emission limits for the VOC have been changed to account for variability in the test results and sampling errors. Minor changes also have been made to testing protocols. EPA on its own also has removed the emission limits and related requirements for Beryllium for all the units because Beryllium is no longer a PSD affected pollutant. These changes and the response to all the comments that were raised during the public comment period can be found in Enclosure III. 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.

EPA concludes 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, I hereby approve VIWAPA's PSD permit. This letter and its attachments represent EPA's final permit decision. The Administrative Record for this case is located at both the EPA Region 2 Office in New York City, New York, and EPA's Caribbean Environmental Protection Division Office in St. Croix, Virgin Islands.

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,

*/s/ William J. Muszynski*  
Jeanne M. Fox  
Regional Administrator

Enclosures

This final permit decision may be challenged under the Consolidated Permit Regulations, codified at 40 CFR Part 124, that apply to EPA's processing of this permit decision. Specifically, 40 CFR §124.19 establishes the following procedures for administrative appeal of the final PSD permit decision. Any person who filed a comment on the draft permit may petition the Environmental Appeals Board in Washington, D.C. for review. In addition, any person who failed to file a comment on the draft permit may petition for administrative review only to the extent of the 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 EPA 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 applying for administrative review must file the original and one (1) 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, DC 20460

For Hand-Carried and Express Mail:  
U.S. Environmental Protection Agency  
Environmental Appeals Board (MC-1103B)  
Westory Building, Suite 500  
607 14th Street, NW  
Washington, DC 20005

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

For purposes of judicial review under the Act, final Agency action does not occur until after 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 filing a petition for review in the United States Court of Appeals for the appropriate circuit within sixty (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 permit were received and minor changes were made to the permit, this final permit will become effective thirty (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 after a decision on the petition is rendered by the Environmental Appeals Board.

## **ENCLOSURE I**

### **VIRGIN ISLANDS WATER AND POWER AUTHORITY NORTH SHORE-ST. CROIX**

#### **PROJECT DESCRIPTION**

The Virgin Islands Water and Power Authority (VIWAPA) is requesting to revise the existing permits for Units 16, 17, 19 and 20 located at its North Shore, St. Croix site for the reasons stated below. EPA is proposing to consolidate permits of Units 10, 11, 12, 14, 16, 17, 19 and 20 into a single amended permit. VIWAPA has retired and dismantled Units 12 and 14, however, it will continue to operate pre-PSD boiler Units 10 and 11 according to the Virgin Islands Department of Natural Resources permits. Thus, VIWAPA will operate six Units at this site.

#### Units 10 and 11

VIWAPA will continue to use these pre-PSD existing boilers pursuant to the permits issued by VIDPNR. These Units shall continue to use residual fuel or better with maximum sulfur content of 0.33% by weight.

#### Units 12 and 14

These Units have been retired and dismantled.

#### Units 16 and 17

EPA is proposing to revise the compliance demonstration and testing requirements for the two existing units - unit 16 and 17 at its St. Croix generating station. Unit #16 is a 23 MW General Electric (GE) oil-fired gas turbine (Model PG 5341) which was installed in 1981. Unit 17 is a 20 MW Alstom Model Series (Model MS 5001) oil-fired gas turbine, which was installed in October 1988. Emissions from units 16 and 17 will be vented through a Heat Recovery Steam Generator (HRSG) capable of producing 98,000 pounds per hour of steam. The HRSG will be configured such that either of the two gas turbines may operate alternatively in a simple or combined cycle mode. These units burn No. 2 fuel oil having a maximum sulfur content of 0.2 percent by weight.

#### Unit 19

EPA is proposing to revise the PM10 emission limit from 5 lbs/hr to 18 lbs/hr, VOC emission limits to reflect the oxygen correction requirement and the revisions in EPA's test methods. The permit issued in 1993 required PM10 testing using Method 201/201A whereas the test which should have been required to be conducted was Method 201/202. Method 202 will catch additional condensable particles. This permit revision continues to limit VIWAPA to .2% sulfur fuel. However, VIWAPA conducted a test of its PM-10 emission rate using approximately .08% sulfur fuel. EPA retains its authority under Section 114 of the Clean Air Act, 42 U.S.C. §7414 to require further PM-10 testing in the event VIWAPA uses fuel exceeding .12% or at any other time that EPA deems appropriate. EPA further reserves the right to revise the sulfur in fuel limit in the event a stack test reveals an exceedance of the 18 lb./hr. PM-10 limit. The VOC emission

estimate by VIWAPA at the initial permit issuance was not based on oxygen correction, however, the permit set the VOC emission limit based on oxygen correction. Thus, the test results reflect emissions based on more accurate test methods rather than a net increase in emissions. This unit, designated unit 19, is a variable load General Electric (GE), Frame 5 combustion turbine (Model PG5371). The unit produces approximately 20 MW of electricity. Unit 19 replaced unit 14 (an older unit installed in 1972) and was constructed on the same location where unit 14 existed. Note that VIWAPA did not use actual emission credits from unit 14 to offset potential emissions from unit 19 when an initial permit was issued in 1993. Unit 19 operates under simple cycle mode, without any secondary heat recovery. Unit 19 burns No. 2 fuel oil having a maximum sulfur content of 0.2 percent sulfur by weight.

#### Unit 20

EPA is proposing to revise the PM<sub>10</sub> emission limit from 5 lbs/hr to 18 lbs/hr, VOC emission limits to reflect the oxygen correction requirement and the revisions in EPA's test methods. The permit issued in 1994 required PM<sub>10</sub> testing using Method 201/201A whereas the test should have been required to be conducted was Method 201/202. Method 202 will catch additional condensable particles. This permit revision continues to limit VIWAPA to .2% sulfur fuel. However, VIWAPA conducted a test of its PM-10 emission rate using approximately .08% sulfur fuel. EPA retains its authority under Section 114 of the Clean Air Act, 42 U.S.C. §7414 to require further PM-10 testing in the event VIWAPA uses fuel exceeding .12% or at any other time that EPA deems appropriate. EPA further reserves the right to revise the sulfur in fuel limit in the event a stack test reveals an exceedance of the 18 lb./hr. PM-10 limit. The VOC emission estimate by VIWAPA at initial permit issuance was not based on oxygen correction, however, the permit set the VOC emission limit based on oxygen correction. Thus, the test results reflect emissions based on more accurate test methods rather than a net increase in emissions. This unit, designated as Unit #20, is a variable load General Electric (GE) combustion turbine, Model PG5371(PA). The unit produces approximately 24.5 megawatts (MW) of electricity, and replaced Unit #12 (an older diesel engine, installed in 1968). Note that VIWAPA did not use actual emission credits from Unit #12 to offset potential emissions from Unit #20 when it was issued the initial permit in 1994. Unit #20 operates under simple cycle mode, without any secondary heat recovery, and burns No. 2 fuel-oil with a maximum sulfur content of 0.2 percent sulfur by weight.

Units 16, 17, 19 and 20 at this site are PSD sources with potential emissions of criteria pollutants in excess of 100 tons per year (TPY). Each unit was issued a PSD permit prior to the present action. All these units are PSD affected for oxides of nitrogen (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), particulate matter less than 10 microns (PM<sub>10</sub>), and volatile organic compounds (VOC). The potential emissions from these units are as follows.

POLLUTANT	UNITS 16 AND 17	UNIT 19	UNIT 20
	(tons/year)	(tons/year)	(tons/year)
Nitrogen Oxides (NO <sub>x</sub> )	583.0	249.7	249.7
Sulfur Dioxide (SO <sub>2</sub> )	591.3	278.4	281.0
Carbon Monoxide (CO)	325.3	1379.7	1379.7
Particulate matter less than 10 microns (PM <sub>10</sub> )	105.5	78.8	78.8
Volatile Organic Compounds (VOC)	117.8	247.5	247.5

VIWAPA employs Best Available Control Technology to control the pollutants described above. NO<sub>x</sub> emissions shall be controlled through the use of water injection. SO<sub>2</sub> and PM<sub>10</sub> 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.

## ENCLOSURE II

### VIRGIN ISLANDS WATER AND POWER AUTHORITY (VIWAPA) NORTH SHORE-ST. CROIX

#### PERMIT CONDITIONS (Units 16,17,19 and 20)

The electric power generating units at VIWAPA - St. Croix, as described in Enclosure I, are subject to the following conditions:

#### I. EMISSION LIMITATIONS AND TESTING REQUIREMENTS:

##### A. Unit 16 ---- 23 MW GE Frame 5 (Model PG5341)

1. The total fuel usage for unit 16 shall not exceed 21,199,200 gallons during any period of 365 consecutive days. Daily compliance shall be determined by adding the amount of fuel oil used during each calendar day to the total quantity of the fuel oil used in the preceding 364 calendar days.
2.
  - a. The maximum heat input shall not exceed 338.8 million British Thermal Units per hour (MMBTU/hr).
  - b. Unit 16 is limited to a maximum fuel consumption rate of 2420 gallons per hour.

#### 3. **Oxides of Nitrogen (NO<sub>x</sub>) Emission Limitation:**

- a. While operating in simple or combined cycle mode, the NO<sub>x</sub> emissions shall not exceed 59.1 pounds per hour (lbs/hr) calculated as NO<sub>2</sub>. The NO<sub>x</sub> emission rate shall be tested using EPA Reference Method (RM) 20 (40 CFR 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 various loads and compliance shall be based on the average NO<sub>x</sub> emission rate of these test runs.

Except when operating at low loads (less than 35% capacity) as reserve, the concentration of NO<sub>x</sub> 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 emission monitoring. Operation at the low load can not exceed 25% of the total annual operating time during a rolling 12-month period.

- b. Except when operating at low loads (less than 35% capacity) as reserve, VIWAPA shall use water injection at all times to control NO<sub>x</sub> emissions. The water to fuel ratio for various load conditions will be established during the performance testing and will be incorporated into the VIDPNR operating permit. Operation at

the low load can not exceed 25% of the total annual operating time during a rolling 12-month period.

- c. While operating in simple or combined cycle mode, using the old combustion portion of the generating unit, the NO<sub>x</sub> emissions shall not exceed 77.4 pounds per hour (lbs/hr) calculated as NO<sub>2</sub>. The NO<sub>x</sub> emission rate shall be tested using EPA Reference Method (RM) 20 (40 CFR 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 various loads and compliance shall be based on the average NO<sub>x</sub> emission rate of these test runs. Except when operating at low loads (less than 35% capacity) as reserve, the concentration of NO<sub>x</sub> in the exhaust gas shall not exceed 55 parts-per-million by volume (ppmdv) on a dry basis, corrected to 15% oxygen, as determined by continuous emission monitoring. Operation at the low load can not exceed 25% of the total annual operating time during a rolling 12-month period.”
- d. If EPA determines that the above emission limitations cannot be continuously maintained, the installation of an add-on nitrogen oxide control system, such as, but not limited to selective catalytic reduction will be required. The gas turbine system shall be designed to accommodate the inclusion of the control system.

#### **4. Sulfur Dioxide (SO<sub>2</sub>) Emission Limitation:**

- a. While operating in simple or combined cycle mode, SO<sub>2</sub> emissions shall not exceed 67.8 lbs/hr. The initial compliance with the emission rate shall be demonstrated by stack tests using EPA (RM) 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<sub>2</sub> emission rate of these test runs. VIWAPA shall demonstrate subsequent compliance with the SO<sub>2</sub> 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<sub>2</sub>. The sulfur content of the fuel shall be determined every time a shipment is received and prorated for the fuel amount in the fuel oil tank. At the beginning of each week, VIWAPA shall review the hourly fuel flow consumption records for the prior one week period and determine the maximum hourly fuel flow consumption. The maximum hourly fuel flow consumption for the prior week and the average fuel sulfur content shall be used to calculate the sulfur dioxide emissions in pounds per hour.
- b. VIWAPA shall use only low sulfur No. 2 fuel oil in which the sulfur content does not exceed 0.2 percent by weight. Compliance shall be determined using the



testing methods established in 40 CFR 60.335(d).

**5. Carbon Monoxide (CO) Emission Limitation:**

- a. While operating in simple or combined cycle mode at base load, CO emissions shall not exceed 37.3 lbs/hr. The CO emission rate shall be tested using EPA (RM) 10 (40 CFR 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 load condition and compliance for each operating mode shall be based on the average CO emission rate of these three test runs.
- b. CO emissions shall not exceed the following concentrations at various percent load levels corrected to 15% oxygen as determined by continuous emission monitoring. Percent load will be determined based on the amount of fuel oil fired.

PERCENT LOAD	CONC. OF CO (ppmdv @ 15% O <sub>2</sub> )
5MW	2947
12MW	1530
17MW	593
18-22MW	204
MAX	51

**6. Particulate Matter/PM<sub>10</sub> Emission Limitation:**

- a. While operating in simple or combined cycle mode, PM emissions shall not exceed 12.1 lbs/hr.
- b. While operating in simple or combined cycle mode, PM<sub>10</sub> emissions shall not exceed 12.1 lbs/hr.
- c. VIWAPA shall conduct stack tests to demonstrate initial compliance with the emission limits. These tests shall be conducted at various loads. The emission rate of PM shall be determined using EPA (RM) Method 5. The PM<sub>10</sub> emission rate shall be determined using EPA (RM) Method 201/201A and 202 (40 CFR 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 load condition and compliance shall be based on the average emission rate of these three test runs.

**7. Volatile Organic Compounds (VOC) Emission Limitation:**

- a. While operating in simple or combined cycle mode at base load, VOC emissions

shall not exceed 13.5 lbs/hr measured as carbon. The VOC emission rate shall be tested using EPA (RM) 25A (40 CFR 60 Appendix A). VIWAPA shall subtract methane and ethane emissions using EPA (RM) 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 load condition and compliance shall be based on the average VOC emission rate of these three test runs.

- b. While operating in simple or combined cycle mode, VOC emissions shall not exceed the following concentrations at various percent load levels corrected to 15% oxygen. Percent load will be determined based on amount of fuel oil fired.

PERCENT LOAD	CONC. OF VOC (ppmdv @ 15% O <sub>2</sub> )
5MW	1417
12MW	905
17MW	110
18-22MW	40
MAX	32

- c. EPA reserves the right to require continuous emission monitoring for VOC in the future.

**8. Opacity Limitation:**

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

**B. Unit 17 ---- 20 MW Alsthom Model Series (MS) 5001**

1. The total fuel usage for unit 17 shall not exceed 21,024,000 gallons during any period of 365 consecutive days. Daily compliance shall be determined by adding the amount of fuel oil used during each calendar day to the total quantity of the fuel oil used in the preceding 364 calendar days.
2.
  - a. The maximum heat input shall not exceed 336.0 million British Thermal Units per hour (MMBTU/hr).
  - b. Unit 17 is limited to a maximum fuel consumption rate of 2400 gallons per hour.

**3. Oxides of Nitrogen (NO<sub>x</sub>) Emission Limitation:**

- a. While operating in simple or combined cycle mode, NO<sub>x</sub> emissions shall not exceed 55.7 pounds per hour (lbs/hr) calculated as NO<sub>2</sub>. The NO<sub>x</sub> emission rate shall be tested using EPA Reference Method (RM) 20 (40 CFR 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 various loads and compliance shall be based on the average NO<sub>x</sub> emission rate of these test runs.
- b. Except when operating at low loads (less than 35% capacity) as reserve, the concentration of NO<sub>x</sub> 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 emission monitoring. Operation at the low load can not exceed 25% of the total annual operating time during a rolling 12-month period.
- c. Except when operating at low loads (less than 35% capacity) as reserve, VIWAPA shall use water injection at all times to control NO<sub>x</sub> emissions. The water to fuel ratio for various load conditions will be established during the performance testing and will be incorporated into the VIDPNR operating permit. Operation at the low load can not exceed 25% of the total annual operating time during a rolling 12-month period.
- d. If EPA determines that the above emission limitations cannot be continuously maintained, the installation of an add-on nitrogen oxide control system, such as, but not limited to selective catalytic reduction will be required. The gas turbine system shall be designed to accommodate the inclusion of the control system.

#### **4. Sulfur Dioxide (SO<sub>2</sub>) Emission Limitation:**

- a. While operating in simple or combined cycle mode, SO<sub>2</sub> emissions shall not exceed 67.2 lbs/hr. The initial compliance with the emission rate shall be demonstrated by stack tests using EPA (RM) 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<sub>2</sub> emission rate of these test runs. VIWAPA shall demonstrate subsequent compliance with the SO<sub>2</sub> emission rate by calculating emissions based on average weekly fuel sulfur content and flow rate. In performing these calculations, VIWAPA shall assume that all sulfur is converted to SO<sub>2</sub>. The sulfur content of the fuel shall be determined every time a shipment is received and prorated for the fuel amount in the fuel oil tank. At the beginning of each week, VIWAPA shall review the hourly fuel flow consumption records for the prior one week period and determine the maximum hourly fuel flow consumption. The maximum hourly fuel flow consumption for the prior week and the average fuel sulfur content shall be used to calculate the sulfur dioxide

emissions in pounds per hour.

- b. VIWAPA shall use only low sulfur No. 2 fuel oil in which the sulfur content does not exceed 0.2 percent by weight. Compliance shall be determined using the testing methods established in 40 CFR 60.335(d).

**5. Carbon Monoxide (CO) Emission Limitation:**

- a. While operating in simple or combined cycle mode at base load, CO emissions shall not exceed 37.0 lbs/hr. The CO emission rate shall be tested using EPA (RM) 10 (40 CFR 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 load condition and compliance for each operating mode shall be based on the average CO emission rate of these three test runs.
- b. CO emissions shall not exceed the following concentrations at various percent load levels corrected to 15% oxygen as determined by continuous emission monitoring. Percent load will be determined based on the amount of fuel oil fired.

PERCENT LOAD	CONC. OF CO (ppmdv @ 15% O <sub>2</sub> )
5MW	2196
10MW	1140
15MW	442
18-20MW	152
MAX	38

**6. Particulate Matter/PM<sub>10</sub> Emission Limitation:**

- a. While operating in simple or combined cycle mode, PM emissions shall not exceed 12.0 lbs/hr.
- b. While operating in simple or combined cycle mode, PM<sub>10</sub> emissions shall not exceed 12.0 lbs/hr.
- c. VIWAPA shall conduct stack tests to demonstrate initial compliance with the emission limits. These tests shall be conducted at various loads. The emission rate of PM shall be determined using EPA (RM) Method 5. The PM<sub>10</sub> emission rate shall be determined using EPA (RM) Method 201/201A and 202 (40 CFR 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 load condition and compliance shall be based on the average emission rate of

these three test runs.

**7. Volatile Organic Compounds (VOC) Emission Limitation:**

- a. While operating in simple or combined cycle mode at base load, VOC emissions shall not exceed 13.4 lbs/hr measured as carbon. The VOC emission rate shall be tested using EPA (RM) 25A (40 CFR 60 Appendix A). VIWAPA shall subtract methane and ethane emissions using EPA (RM) 18 from 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 load condition and compliance shall be based on the average VOC emission rate of these three test runs.
- b. While operating in simple or combined cycle mode, VOC emissions shall not exceed the following concentrations at various percent load levels corrected to 15% oxygen. Percent load will be determined based on amount of fuel oil fired.

PERCENT LOAD	CONC. OF VOC (ppmdv @ 15% O <sub>2</sub> )
5MW	1063
10MW	679
15MW	82
18-20MW	30
MAX	24

- c. EPA reserves the right to require continuous emission monitoring for VOC in the future.

**8. Opacity Limitation:**

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

**C. Unit 19 - 20 MW GE Frame 5 (Model PG5371)**

- 1. The total fuel usage for unit 19 shall not exceed 19,885,200 gallons during any period of 365 consecutive days. Daily compliance shall be determined by adding the amount of fuel oil used during each calendar day to the total quantity of the fuel oil used in the preceding 364 calendar days.
- 2. a. The maximum heat input shall not exceed 317.8 million British Thermal Units per hour (MMBTU/hr).

- b. Unit 19 is limited to a maximum fuel consumption rate of 2,270 gallons per hour.

**3. Oxides of Nitrogen (NO<sub>x</sub>) Emission Limitation:**

- a. The NO<sub>x</sub> emissions shall not exceed 57 pounds per hour (lbs/hr) calculated as NO<sub>2</sub>. The NO<sub>x</sub> emission rate shall be tested using EPA Reference Method (RM) 20 (40 CFR 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 various loads and compliance shall be based on the average NO<sub>x</sub> emission rate of these test runs.

Except when operating at low loads (less than 25% capacity) as reserve, the concentration of NO<sub>x</sub> 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 emission monitoring. Operation at the low load can not exceed 25% of the total annual operating time during a rolling 12-month period.

- b. Except when operating at low loads (less than 25% capacity) as reserve, VIWAPA shall use water injection at all times to control NO<sub>x</sub> emissions. The water to fuel ratio for various load conditions will be established during the performance testing and will be incorporated into the VIDPNR operating permit. Operation at the low load can not exceed 25% of the total annual operating time during a rolling 12-month period.
- c. If EPA determines that the above emission limitations cannot be continuously maintained, the installation of an add-on nitrogen oxide control system, such as, but not limited to selective catalytic reduction will be required. The gas turbine system shall be designed to accommodate the inclusion of the control system.

**4. Sulfur Dioxide (SO<sub>2</sub>) Emission Limitation:**

- a. The SO<sub>2</sub> emissions shall not exceed 63.5 lbs/hr. The initial compliance with emission rate of SO<sub>2</sub> shall be determined using EPA (RM) 20 (40 CFR 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 various load conditions and compliance shall be based on the average SO<sub>2</sub> emission rate of these test runs. VIWAPA shall demonstrate subsequent compliance with the SO<sub>2</sub> emission rate by calculating emissions based on average weekly fuel sulfur content and flow rate and assuming that all sulfur is converted to SO<sub>2</sub>. The sulfur content of the fuel shall be determined every time a shipment is received and prorated for the fuel amount in the fuel oil tank. At the beginning of each week, VIWAPA shall review the hourly fuel flow consumption records for the prior one week period and determine the maximum hourly fuel flow

consumption. The maximum hourly fuel flow consumption for the prior week and the average fuel sulfur content shall be used to calculate the sulfur dioxide emissions in pounds per hour.

- b. VIWAPA shall use only low sulfur No. 2 fuel oil in which the sulfur content does not exceed 0.2 percent by weight. Compliance shall be determined using the testing methods established in 40 CFR 60.335(d).

**5. Carbon Monoxide (CO) Emission Limitation:**

- a. The CO mass emission rates at various loads are given in the table below. Compliance will be demonstrated using EPA (RM) 10 (40 CFR 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 load condition and compliance for each operating mode shall be based on the average CO emission rate of these three test runs.
- b. CO emissions shall not exceed the following concentrations at various load levels corrected to 15% oxygen as determined by continuous emission monitoring. The load will be determined based on the amount of electricity generated (MW).

PERCENT LOAD	EMISSION RATE in lbs/hr(ppmdv @ 15% O <sub>2</sub> )
5MW	315.0 (450)
10MW	294.0 (420)
15MW	288.1 (360)
18-20MW	219.8 (159)
MAX	66.7 (83)

- c. For any 8-hour period, unit 19 shall not operate below a load factor of 15 percent.

**6. PM<sub>10</sub> Emission Limitation:**

- a. The PM<sub>10</sub> emissions shall not exceed 18 lbs/hr.
- b. VIWAPA shall conduct stack tests to demonstrate initial compliance with the emission limits. These tests shall be conducted at various loads. The PM<sub>10</sub> emission rate shall be determined using EPA (RM) Method 201/201A and 202 (40 CFR 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 load condition and compliance shall be based on the average emission rate of these three test runs.

**7. Volatile Organic Compounds (VOC) Emission Limitation:**

- a. The VOC mass emission rates (measured as carbon) at various load ranges is given in the table below. Compliance shall be demonstrated using EPA (RM) 25A (40 CFR 60 Appendix A). VIWAPA shall subtract methane and ethane emissions using EPA (RM) Method 18 from 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 load condition and compliance shall be based on the average VOC emission rate of these three test runs.
- b. VOC emissions shall not exceed the following concentrations at various load levels corrected to 15% oxygen. The load will be determined based on amount of electricity generated (MW).

LOAD	EMISSION RATE in lbs/hr (ppmdv @ 15% O <sub>2</sub> )
5 MW	56.5(268)
10 MW	28 (89)
15 MW	17.5 (37)
16-18 MW	5.6 (13)
MAX	3.1 (10)

- c. EPA reserves the right to require continuous emission monitoring for VOC in the future.

**8. Opacity Limitation:**

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

**D. Unit #20 - 24.5 MW GE Turbine (Model PG5371)**

- 1. The total fuel usage for Unit #20 shall not exceed 19,830,720 gallons during any period of 365 consecutive days. Daily compliance shall be determined by adding the amount of fuel-oil used during each calendar day to the total quantity of the fuel-oil used in the preceding 364 calendar days.
- 2.
  - a. The maximum heat input shall not exceed 317.9 million British thermal units per hour (MMBtu/hr).
  - b. Unit #20 is limited to a maximum fuel consumption rate of 2,270 gallons per



hour.

3. **Oxides of Nitrogen (NO<sub>x</sub>) Emission Limitations:**

- a. The NO<sub>x</sub> emissions shall not exceed 57 pounds per hour (lbs/hr) calculated as NO<sub>2</sub>. The NO<sub>x</sub> emission rate shall be tested using EPA Reference Method (RM) 20 (40 CFR 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 load condition, and compliance for each operating mode shall be based on the average NO<sub>x</sub> emission rate of these three test runs.

Except when operating at low loads (less than 25% capacity) as reserve, the concentration of NO<sub>x</sub> 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 emission monitoring. Operation at low loads cannot exceed 25% of the total annual operating time during a rolling 12-month period.

- b. Except when operating at low loads (less than 25% capacity) as reserve, VIWAPA shall use water injection at all times to control NO<sub>x</sub> emissions. The water to fuel ratio for various load conditions will be established during the performance testing, and will be incorporated into the VIDPNR operating permit.
- c. If EPA determines that the above emission limitations cannot be continuously maintained, the installation of an add-on nitrogen oxide control system, such as but not limited to, selective catalytic reduction, will be required. The gas turbine system shall be designed to accommodate the inclusion of such a control system.

4. **Sulfur Dioxide (SO<sub>2</sub>) Emission Limitations:**

- a. The SO<sub>2</sub> emissions shall not exceed 64.2 lbs/hr. The initial compliance with emission rate of SO<sub>2</sub> shall be determined using EPA RM 20 (40 CFR 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 load condition, and compliance for each operating mode shall be based on the average SO<sub>2</sub> emission rate of these three test runs. VIWAPA shall demonstrate subsequent compliance with the SO<sub>2</sub> emission rate by calculating emissions based on average weekly fuel sulfur content and flow rate and assuming that all sulfur is converted to SO<sub>2</sub>. The sulfur content of the fuel shall be determined every time a shipment is received and prorated for the fuel amount in the fuel oil tank. At the beginning of each week, VIWAPA shall review the hourly fuel flow consumption records for the prior one week period and determine the maximum hourly fuel flow consumption. The maximum hourly fuel flow consumption for the prior week and the average fuel sulfur content shall be used to calculate the sulfur

dioxide emissions in pounds per hour.

- b. VIWAPA shall use only low sulfur No. 2 fuel-oil, in which the sulfur content does not exceed 0.2 percent by weight. Compliance shall be determined using the testing methods established in 40 CFR 60.335(d).

5. **PM<sub>10</sub> Emission Limitations:**

- a. The PM<sub>10</sub> emissions shall not exceed 18 lbs/hr.
- b. VIWAPA shall conduct stack tests to demonstrate initial compliance with the emission limits. These tests shall be conducted at various loads. The PM<sub>10</sub> emission rate shall be determined using EPA (RM) Method 201/201A and 202 (40 CFR 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 load condition, and compliance for each operating mode shall be based on the average PM<sub>10</sub> emission rate of these three test runs.

6. **Carbon Monoxide (CO) Emission Limitations:**

- a. The CO mass emission rates at various loads are given in the table below. Compliance will be demonstrated using EPA RM 10 (40 CFR 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 load condition, and compliance for each operating mode shall be based on the average CO emission rate of these three test runs.
- b. CO emissions shall not exceed the following concentrations at various percent load levels, corrected to 15% oxygen, as determined by continuous emission monitoring. Percent load will be determined based on the amount of electricity generated (MW).

<b>PERCENT LOAD</b>	<b>EMISSION RATE in lbs/hr(ppmdv @ 15% O<sub>2</sub>)</b>
5MW	315 (450)
10MW	294 (420)
15MW	288 (360)
18-20MW	219.8 (159)
MAX	66.7 (83)

- c. For any 8-hour period, Unit #20 shall not operate below a load factor of 15 percent.

**7. Volatile Organic Compounds (VOC) Emission Limitations:**

- a. The VOC mass emission rates (measured as carbon) at various loads is given in the table below. Compliance shall be demonstrated using EPA RM 25A (40 CFR 60 Appendix A). VIWAPA shall subtract methane and ethane emissions using EPA (RM) Method 18 from 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 load condition, and compliance for each operating mode shall be based on the average VOC emission rate of these three test runs.
- b. VOC emissions shall not exceed the following concentrations at various percent load levels, corrected to 15% oxygen. Percent load will be determined based on amount of electricity generated (MW).

<b>LOAD</b>	<b>EMISSION RATE in lbs/hr (ppmdv @ 15% O<sub>2</sub>)</b>
5 MW	56.5(268)
10 MW	28 (89)
15 MW	17.5 (37)
18-20 MW	5.6 (13)
MAX	3.1 (10)

- c. EPA reserves the right to require continuous emission monitoring for VOC in the future.

**8. Opacity Limitations:**

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

**E. Existing Residual Fuel-Consuming Units 10 and 11:**

- 1. Unit 10 and unit 11 are limited to a maximum fuel consumption rate of 1,744 gallons/hour and 3,140 gallons/hr respectively.
- 2. Unit 10 and unit 11 shall use No. 6 fuel oil in which the sulfur content does not exceed 0.33 percent by weight.

**II. MONITORING, RECORDING, and RECORD KEEPING:**

- A. Prior to the date of startup and thereafter, VIWAPA shall install, calibrate, maintain and

operate continuous emission monitors or monitoring systems to measure stack emissions and operating parameters indicated below:

Units 16/17

Continuous emission monitors (CEMs): CO, O<sub>2</sub>, NO<sub>x</sub>, and opacity.

Units 19/20-

Continuous emission monitors (CEMs): CO, O<sub>2</sub>, NO<sub>x</sub>, and opacity.

Continuous monitors: Volumetric stack gas flow rate, Stack temperature, and Water to fuel ratio.

- B. Within 180 days of the effective date of this permit, VIWAPA shall install, calibrate and test each continuous emission monitor (CEM) and recorder listed in II(A). 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.
- C. Not less than 90 days prior to the date of startup of any unit, 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.
- D. 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.
- E. Logs shall be kept and updated daily to record the following:
  - 1. the No. 2 fuel oil fired (gallons) on an hourly and annual (rolling 365-day) basis, and hours of operation for unit 16, 17, 19 and 20;
  - 2. exceedance of emission limitations determined by continuous monitoring;
  - 3. the sulfur content of all fuel oil burned; sulfur dioxide emission calculations, all sulfur dioxide emissions shall be recorded and maintained in a logbook.
  - 4. the amount of water consumed (gals) to control NO<sub>x</sub> emissions from all units
  - 5. the amount of electrical output (MW) on an hourly basis from all units, amount of

steam produced from Units 16, 17 and the HRSGs at Units 16 and 17

- 6 the amounts (gallons) of No. 6 oil fired from existing Units 10 and 11 on an hourly basis
- F. All continuous monitoring records and logs specified in this section must be maintained for a period of five years after the date of record, and made available upon request.
- G. In each report quarter, 95% quality data availability shall be maintained for all opacity monitors and 90% quality data availability shall be maintained for all gaseous monitors. There shall be a quality assurance plan coupled with a calibration and maintenance program for these monitors.

### III. REPORTING REQUIREMENTS:

- A. All emission reports, testing reports and start-up notifications required under this permit shall be submitted to the EPA official named below. Three copies of the stack test report must be submitted within 60 days after completion of the test.

Mr. Carlos O'Neill, Chief  
Enforcement and Superfund Branch  
Caribbean Environmental Protection Division  
U.S.E.P.A. Region II, Centro Europa Building  
1492 Ponce De Leon Av, Suite 417  
Santurce, Puerto Rico 00907-4127

- B. Upsets/Malfunctions:

Upsets/malfunctions and actions taken on any unit must be reported by telephone within 24 hours with a follow-up letter within 5 calendar days to:

Mr. Hollis Griffin  
Director, Division of Environmental Protection  
Virgin Islands Department of Planning &  
Natural Resources  
Building 111, Apartment 114  
Water Gut Homes  
Christiansted, St. Croix, USVI 00820  
(809) 773-0565

VIWAPA shall submit a written report of excess emissions to EPA for every calendar

quarter. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter and shall include the information specified below:

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 (not including zero and span checks) and the nature of the system repairs or adjustments.
4. When no excess emissions have occurred, or the continuous monitoring system(s) have not been inoperative, repaired or adjusted, such information shall be stated in the report.
5. The sulfur dioxide emissions shall be recorded, maintained in a logbook and reported as part of in VIWAPA's quarterly excess emission report. All sulfur dioxide exceedances as determined by fuel sulfur content and fuel usage shall be reported in the quarterly report. If there are no exceedances during a quarter, a statement to this effect shall be included in the quarterly Excess Emission Report.

The quarterly excess emission reports required in this section shall be sent to  
Ms. Ann Zownir  
Region II CEM Coordinator  
Air and Water Section, Monitoring and Management Branch  
U.S. EPA Region II  
2890 Woodbridge Avenue  
Edison, New Jersey 08837

A copy should also be sent to Mr. Carlos O'Neill of Region II and Mr. Hollis Griffin of Virgin Islands Department of Planning and Natural Resources at the addresses listed under Section III.A. and III.B.

#### **IV. 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).

## **V. TESTING REQUIREMENTS:**

- A. VIWAPA shall conduct all performance tests in accordance with the following:
1. Conduct stack tests on the units 16, 17, 19 and 20 for all affected pollutants in accordance with the test methods published in 40 CFR Part 60 Appendix A and 40 CFR Part 51 Appendix M. All tests must be conducted within 60 days after achieving shakedown, but no later than 180 days after initial startup.
  2. Obtain approval of a stack test protocol. VIWAPA may use Test Method 19 in lieu of Test Method 2 to determine stack gas volume. A detailed description of the sampling point locations, sampling equipment, sampling and analytical procedures, data reporting forms, quality assurance procedures and operating conditions for such tests must be submitted to the EPA.
  3. Notify EPA and VIDPNR at least 30 days prior to actual testing.
  4. Provide permanent sampling and testing facilities as may be required by the EPA to determine the nature and quantity of emissions from each unit. Such facilities shall conform with all applicable laws and regulations concerning safe construction and safe practice.
- B. The EPA reserves the right to require additional stack testing of the pollutants for which an emission limitation has been set in Section I of the permit.

## ENCLOSURE III

### VIRGIN ISLANDS WATER AND POWER AUTHORITY (VIWAPA) ST.CROIX, U.S. VIRGIN ISLANDS

REVISIONS TO THE PSD PERMIT FOR UNITS 10, 11, 16, 17, 19 AND 20

#### RESPONSIVENESS SUMMARY

All the comments are submitted by VIWAPA and they all are technical in nature relating primarily to permit conditions in the proposed revised PSD permit issued on January 13, 2000.

#### Testing Requirements

##### Comment 1

In correspondence dated April 19, 1996, VIWAPA asked for approval of the use of Method 19 in lieu of Method 2 to measure stack gas volumes for purposes of the PSD permits for Units 16, 17, 19 and 20. By letter dated December 11, 1996 (Mangels to Rhymer), the Agency stated that this request was approvable. However, the proposed permit contains no reference to this clarification. VIWAPA requests explicit approval of the use of Method 19.

##### EPA Response

We accept that Method 19 can be used to measure stack gas volumes for the PSD permits for Units 16, 17, 19 and 20. Therefore, the PSD permit is revised accordingly.

##### Comment 2

In correspondence dated April 24, 1996, VIWAPA asked that the Agency approve stack testing of TSP, PM-10 and Sulfur Dioxide for Units 16, 17, 19 and 20 at maximum load only, rather than requiring tests under all load conditions. VIWAPA also made a similar request for Beryllium at Units 16 and 17. By letter dated December 11, 1996 (Mangels to Rhymer), the Agency stated that this request was approvable. However, the proposed permit requires testing at various loads.

##### EPA Response

In general, the higher the operating load of the units like these, the higher will be the emissions. However, VIWAPA's test results of these particular units indicate that the emission levels have a wider variability and in certain tests higher emissions have been indicated at lower load (for example, average particulate emissions for Unit 19 are 13 pounds per hour at 15 MW and 8.68 pounds per hour at maximum load). To ensure compliance with the emission limits at all loads, EPA continues to require testing at various loads. Note that this is consistent with EPA Region 2's practice of requiring tests at various loads for all the permits. On a case by case basis we also grant waiver from such requirements, for example, for Unit 16 and 17, we required testing at two loads, high and low. Beryllium is no longer a PSD pollutant therefore, we have removed the emission limits and the related requirements from this permit.

##### Comment 3



In correspondence dated April 24, 1996, VIWAPA asked that the Agency approve calculations of sulfur dioxide emissions for Units 16, 17, 19 and 20 and Beryllium for Units 16 and 17, using analyses of fuel for sulfur and beryllium. By letter dated December 11, 1996 (Mangels to Rhymer), the Agency stated that this request was approvable. The proposed permit is unclear on this issue.

#### EPA Response

A PSD permit will require initial compliance demonstration by a stack test. All subsequent compliance demonstration for sulfur dioxide may be demonstrated using the fuel analyses. The revised PSD permit clearly states this position. It should be noted that EPA reserves the right, under Section 114 of the Clean Air Act, to require stack testing for any of the permitted pollutant at any time in the future.

#### Comment 4

In correspondence dated April 24, 1996, VIWAPA asked that the Agency approve compliance with NSPS requirements for sulfur dioxide at Units 16, 17, 19 and 20 be done by fuel analyses and calculations. By letter dated December 11, 1996 (Mangels to Rhymer), the Agency stated that this request was approvable. VIWAPA filed a formal request for a waiver under NSPS Subpart GG. The permit does not reflect such a waiver.

#### EPA Response

The December 11, 1996 (Mangels to Rhymer) letter states that Subpart GG does not allow for this substitution and as such VIWAPA would need to request a waiver for complying with Subpart GG. The letter is silent on whether such a waiver would be approved. Furthermore, EPA cannot grant a NSPS waiver via a PSD permit. VIWAPA's request for such a NSPS Subpart GG waiver is being processed by the Division of Enforcement and Compliance Assistance at the Region 2 Office. VIWAPA will be notified when a decision is made on its waiver request.

#### Comment 5

In proposing approval of VIWAPA's request for compliance demonstration using fuel analyses, EPA specified that it be based on "average weekly content and flow". Clarify this language.

#### EPA Response

We have clarified the language for the compliance demonstration using fuel analyses as follows: "At the beginning of each week, VIWAPA shall review the hourly fuel flow consumption records for the prior one week period and determine the maximum hourly fuel flow consumption. The maximum hourly fuel flow consumption for the prior week and the average fuel sulfur content shall be used to calculate the sulfur dioxide emissions in pounds per hour. The sulfur dioxide emissions shall be recorded, maintained in a logbook and reported as part of in VIWAPA's quarterly excess emission report. All sulfur dioxide exceedances as determined by fuel sulfur content and fuel usage shall be reported in the quarterly report. If there are no exceedances during a quarter, a statement to this effect shall be included in the quarterly Excess Emission Report. The sulfur content of the fuel shall be determined every time a shipment is received and prorated for the fuel amount in the fuel oil tank."

#### Comment 6

Without any justification, the Agency has proposed to significantly modify the testing requirements for Units 16 and 17 by adding a requirement that PM-10 testing include the condensibles from Method 202 as well. There is no legal or factual basis for effectively decreasing the original permit limit for PM-10 at Units 16 and 17 by modifying the applicable testing method.

#### EPA Response

The original permits when issued did not appropriately address the test methods for PM-10. The review and approval of the test protocol found and rectified this anomaly. This revised PSD permit merely reflects the test methods approved during the test protocol process for the Units 16 and 17. The test methods have not been revised to effectively decrease the original permit limit for PM-10 emissions at Units 16 and 17. Note that Unit 16 was tested for PM-10 in May 1998 and test results indicate that this Unit complied with the PM-10 emission limit of 12.2 lbs/hr (stack test result- 10.5 lbs/hr). EPA will make any future decision on the PM-10 emission limits for Unit 17 based on the stack test results for that unit.

#### Comment 7

In its approval of test protocol for Units 19 and 20, the Agency recognized the physical limitations at VIWAPA facilities and allowed the use of test Method 5 instead of Method 201/201A for Units 19 and 20. VIWAPA subsequently requested that Method 5B should also be approvable. The proposed permit should also state that Method 5B is approvable.

#### EPA Response

Use of Method 5B is not appropriate for the overall PM-10 emission determination because it excludes particulate contributed to fuel sulfur.

#### Comment 8

Compliance tests for VOC at Units 19 and 20 were performed a few years ago. Therefore, the proposed permit should be amended by deleting the requirements for additional VOC testing at Units 19 and 20.

#### EPA Response

The original permits required testing of VOC at various loads and imposed both hourly and ppm limits. VIWAPA failed some of those limits. Based on the review of those test results and pursuant to VIWAPA's comments, the permit limits for VOC are now revised to reflect these test results (see response to Comment 9). EPA therefore concurs that the requirement for additional VOC testing at Units 19 and 20 should be deleted. Note that EPA reserves its right under Section 114 of the Act to require additional testing at any time in the future.

### **Emission Limits**

#### Comment 9

VIWAPA believes that the revised mass and concentration limits for VOC for Units 19 and 20 are inconsistent with the test results. The mass limits in the original permit should be retained and the proposed concentration limits for Unit 19 should be increased by 20% (for sampling, emission variability) and the same mass/concentration limits for VOC be applied to Unit 20.

#### EPA Response

The concentration limits for VOC for Units 19 and 20 are revised to make them consistent with the information contained in the original application and the test results. Note that the test results are inconsistent for both units. In some cases, we have revised the emission limits pursuant to your concerns regarding oxygen correction. Where the test results have shown compliance the concentration limits in the original permit have been adjusted for oxygen correction. Where the test results have differed, the mass and/or concentration limits have been revised to 110% of the test result. The mass limits have been retained as in the original permit where the test results have indicated compliance.

**REVISED VOC LIMITS FOR UNITS 19 and 20**

LOAD	VOC-- ppmdv(lbs/h r) existing permit limits	Test Results VOC--ppmdv(lbs/hr)		Revised VOC-- ppmdv(lbs/hr) emission limits
		<u>Unit 19/20</u>	<u>Unit 19</u>	
5 MW	132(56.5)	78(12.5)	10.5(1.86)	268(56.5)
10 MW	65(28)	43(9)	13.4(2.69)	89(28)
15 MW	30(17.5)	16.7(4.5)	10.6(2.81)	37(17.5)
18-20 MW	9(5.6)	10.5(2.95)	12.1(3.58)	13(5.6)
MAX	4(2.4)	8.8(2.88)	8.1(2.65)	10(3.1)

Comment 10

The emission limit table structure is provided as % of load. VIWAPA requests that the operating ranges 5-10 MW, 10-15 MW, 15-18 MW, 18-20 MW and 20-Max MW should also be included.

EPA Response

VIWAPA requested permit revisions related to emission limits for PM-10 and VOC for Units 19 and 20 and certain other items related to testing protocols. EPA therefore maintained the emission limit table structure as % load for other pollutants as in the original PSD permits. In order to further streamline this permit we agree with VIWAPA's request. Therefore, the final revised permit includes CO emission limits according to the operating ranges rather than % load for Units 16, 17, 19 and 20.

**Miscellaneous Corrections**

Comment 11

The original permit for Unit 16 allowed the use of the Unit at a NO<sub>x</sub> emission rates above 59.1 pounds per hour and 42 ppm<sub>dv</sub> @ 15% oxygen. This operating mode seems to have been deleted from the revised permit.

EPA Response

The revised permit continues to allow the operation of Unit 16 at a NO<sub>x</sub> emission rate at 59.1 pounds per hour and 42 ppm<sub>dv</sub> @ 15% oxygen. EPA, however, concurs that the following operating mode and related permit conditions were deleted inadvertently in the combined permit.

“While operating in simple or combined cycle mode, using the old combustion portion of the generating unit, the NO<sub>x</sub> emissions shall not exceed 77.4 pounds per hour (lbs/hr) calculated as NO<sub>2</sub>. The NO<sub>x</sub> emission rate shall be tested using EPA Reference Method (RM) 20 (40 CFR 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 various loads and compliance shall be based on the average NO<sub>x</sub> emission rate of these test runs. Except when operating at low loads (less than 35% capacity) as reserve, the concentration of NO<sub>x</sub> in the exhaust gas shall not exceed 55 parts-per-million by volume (ppm<sub>dv</sub>) on a dry basis, corrected to 15% oxygen, as determined by continuous emission monitoring. Operation at the low load can not exceed 25% of the total annual operating time during a rolling 12-month period.”

We have now included the above condition in the final revised permit.

Comment 12

The Fact-Sheet should also include reference to correspondence between VIWAPA and EPA dated April 19, 1996 (Rhymer to Eng), April 24, 1996 (Rhymer to Eng), September 18, 1996 (Rhymer to Eng) and December 11, 1996 (Mangels to Rhymer). The June 6, 1997 correspondence should be corrected to “June, 16”.

EPA Response

The PSD permit Fact-Sheet includes a chronology of events after a formal submittal of a PSD application to track formal review process. VIWAPA submitted a formal permit revision request on December 19, 1996. EPA, however, agrees with the commenter that the above mentioned correspondence are part of the overall facility file and are in the record. The “June 6” date in the Fact-Sheet has been changed to “June 16”.

Comment 13

In the Project Description, revised permit limit of “16 lbs/hr” for Unit 20 should be changed to “18 lbs/hr”.

EPA Response

EPA concurs with this comment, therefore, the “Project Description” has been revised accordingly.

Comment 14

In Section E (page 13), the heading for the section on Units “11 and 12” should be corrected to Units “10 and 11”.

EPA Response

EPA concurs with this comment, therefore, the heading for Section E has been revised accordingly.

Comment 15

Section IV, Other Permit Conditions should not include general reference to NSPS and state/local requirements. This may result in unjustifiable double violations (this Permit and applicable NSPS). Section IV should be deleted.

EPA Response

Under the Clean Air Act (CAA) and the State authorities many regulations will apply to the Units covered under this PSD permit. These other regulations may be overlapping and/or complementary. EPA Region 2's practice is to include a general condition in a PSD permit to alert the permittee to such other regulations and associated additional compliance obligations. Note that such a general condition is also consistent with Section 504(a) of the CAA which requires that a permit should ensure compliance with all applicable requirements.

Comment 16

Attachment I potential emissions for Units 19 and 20 should show changes only for PM-10 emissions. The other emissions should not change.

EPA Response

EPA concurs that potential emissions for Units 19 and 20 for NO<sub>x</sub>, CO and Sulfur Dioxide should not change. We will correct a typographical error in the Sulfur Dioxide emissions for Unit 19 and change the emissions from 276.8 tons per year to 278.4 tons per year. The emissions for PM-10 and VOC have changed for Units 19 and 20 to reflect the revised permit limits for these two pollutants. Note that the Attachment I would reflect any changes made in the final revised PSD permit.