



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

AUG 15 2007

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

Ms. Kathleen Antoine  
Environmental Director  
HOVENSA, L.L.C.  
1 Estate Hope  
Christiansted, VI 00820-5652

Re: Prevention of Significant Deterioration of Air Quality (PSD)  
Administrative Amendment - Gas Turbine No. 10

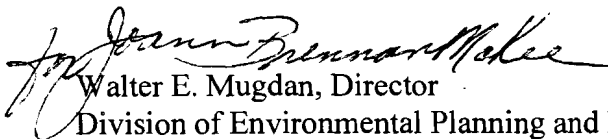
Dear Ms. Antoine:

The U.S. Environmental Protection Agency (EPA), Region 2 Office, received your letter dated July 11, 2007 requesting changes to monitoring conditions in the existing GT No. 10 PSD permit. Specifically, HOVENSA requests that the condition to utilize a continuous monitoring system to measure stack gas volumetric flow rate be replaced with the requirement to use fuel flow meters in conjunction with the existing CEMS; an approach consistent with 40 CFR Part 75, Appendix D.

After reviewing your submittal, I hereby approve your request. Because there are no increases in emissions or changes in the air quality impacts, and because the proposed monitoring method has already undergone the public notice process, this permit revision is being processed administratively. This letter and its attachment represent EPA's final permit decision which is effective immediately.

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

Sincerely,

  
Walter E. Mugdan, Director  
Division of Environmental Planning and Protection

Enclosures



bcc: S. Riva, DEPP-APB  
C. Adduci, DEPP-APB  
F. Mills, ORC-AB  
J. Siegel, ORC-AB  
APB File  
ORC-Air Chron File



**FACT SHEET  
HOVENSA, L.L.C.**

**GAS TURBINE NO. 10  
ADMINISTRATIVE AMENDMENT OF PSD PERMIT**

**BACKGROUND**

**March 22, 1993** – EPA issues final PSD permit to HOVENSA for the construction and operation of a GE Frame 5 combustion turbine (GT No. 10). GT No. 10 can combust both gaseous and liquid fuels to produce approximately 27 MW of peak power and 25 MW at base load.

**January 22, 2004** – EPA issues a revised PSD permit to increase the hours of operation of GT No. 10 to allow for continuous operation while reducing the amount of oil firing allowed. In addition, PM-10 limits were revised to account for condensable particulates. This project did not result in a significant emissions increase for any pollutant. The modification was necessary to address the revisions to GT No. 10 and to make emissions reductions from the No. 2 Vacuum Unit heaters enforceable for netting purposes.

**July 11, 2007** – HOVENSA requests a change in the monitoring of GT No. 10. The 2004 permit contains the requirement to install and utilize the CEM system based on stack gas volumetric flow rates. HOVENSA is requesting that the permit be revised to require the use of calibrated fuel flow meters in conjunction with the existing CEMS.

**FINDINGS**

The attached revised PSD permit contains the permit revisions that HOVENSA requested.

No regulations have been promulgated to address the processing of modifications to PSD permits and no definitive policy exists. Air emissions from the facility will not be increasing nor will air quality impacts change as a result of these permit revisions. In this case, the change is from one method of measuring emissions to another, more accurate, method. HOVENSA proposes to use an existing regulatory measurement method which has undergone notice and comment rulemaking and serves as a valid method under 40 CFR Part 75, Appendix D. Because there are no increases in emissions or changes in the air quality impacts, and because the proposed monitoring method has already undergone the public notice process, this permit revision can be processed administratively.



Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

GT No. 10, as described in Attachment I, is subject to the following conditions:

I. Permit Expiration

This PSD Permit shall become invalid 1) if construction has not commenced (as defined in 40 CFR Part 52.21(b)(8)) within 18 months after the approval takes effect, 2) if construction is discontinued for a period of 18 months or more, or 3) if construction is not completed within a reasonable time.

II. Notification of Commencement of Construction and Startup

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

III. Facilities Operation

All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this PSD Permit shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions.

The continuous emission monitoring systems required by this permit shall be on-line and in operation 95% of the time when GT No. 10 is operating.

IV. Malfunction

The Regional Administrator shall be notified in writing within ten (10) days following any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner which results in an increase in emissions above any allowable emission limit stated in Condition VIII of this Attachment II. This notification shall include: a description of the malfunctioning equipment or abnormal operation; the date of the initial failure; the period of time over which emissions were increased due to the failure; the cause of the failure; the estimated resultant emissions in excess of those

Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

allowed under Condition VIII of this Attachment II; and the methods utilized to restore normal operations. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violations of this permit or of any law or regulations which such malfunction may cause.

V. Right to Entry

The Regional Administrator and/or his authorized representatives, upon the presentation of credentials shall be permitted:

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

VI. Transfer of Ownership

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

VII. Types of Fuels Allowed on GT No. 10

1. HOVENSA shall only combust the following fuels in GT No. 10:
    - a. Gaseous Fuels
      - i) Refinery Grade Propane
      - ii) Refinery Grade Butane
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Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

b. Liquid Fuels

i) Distillate Fuel Oil  $\leq 0.2$  % sulfur by weight

2. HOVENSA shall combust liquid fuels up to a maximum of 876 hours per year, as calculated on a 365-day rolling total basis.
- a. For the purposes of this condition, when liquid and gaseous fuels are co-fired during the hour, the equivalent amount of time for liquid fuel consumption is taken as the ratio of the heat content of the liquid fuel to the heat content of the total fuel for that hour independent of the total load. For instance, if 70 MMBTUs of liquid fuel and 210 MMBTUs of gaseous fuel were used in an hour (at about 90% load), the time of liquid fuel usage would be  $70/(70+210)=0.25$  hours.

VIII. Emission Limitations for GT No. 10

1. Nitrogen Oxides (NO<sub>x</sub>)

- a. NO<sub>x</sub> emissions, during gaseous and/or liquid fuel firing, shall not exceed 42 parts per million dry volume (ppm<sub>dv</sub>) corrected to 15% oxygen, or 57.0 lbs/hour, whichever is more stringent.
- b. Annual NO<sub>x</sub> emissions shall not exceed 150.2 tons per year as calculated on a 365-day rolling basis.
- c. Except during startups and shutdowns, HOVENSA shall use steam injection at all times to control NO<sub>x</sub> emissions. The optimum steam to fuel ratio will be established during the performance testing and will be incorporated in the VIDPNR operating permit.

2. Carbon Monoxide (CO)

- a. CO emissions, during gaseous fuel firing, shall not exceed 206.5 parts per million dry volume (ppm<sub>dv</sub>) corrected to 15% oxygen, or 94.0 lbs/hour, whichever is more stringent.
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Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

- b. CO emissions, during liquid fuel firing, shall not exceed 242 parts per million dry volume ( $\text{ppm}_{\text{dv}}$ ) corrected to 15% oxygen, or 111 lbs/hour, whichever is more stringent.
- c. CO emissions shall not exceed 44.1 tons per year as calculated on a 365-day rolling basis.
- d. CO emissions, during combination fuel firing, shall not exceed the prorated gaseous and liquid fuel emissions as determined by the flow rate of each fuel type.
- e. GT No. 10 shall be operated, except during periods of startups and shutdowns, at loads greater than 50%.

3. Particulate Matter Under 10 Microns ( $\text{PM}_{10}$ )

- a. Emissions of  $\text{PM}_{10}$ , during gaseous fuel firing, shall not exceed 2.5 lbs/hour.
- b. Emissions of  $\text{PM}_{10}$ , during liquid fuel firing, shall not exceed 9.5 lbs/hour.
- c.  $\text{PM}_{10}$  emissions, during combination fuel firing, shall not exceed the prorated gaseous and liquid fuel emissions as determined by the flow rate of each fuel type.
- d. Opacity of emissions shall not exceed 10 percent (six-minute average) except for one six-minute set per hour which shall not exceed 25 percent.

IX. No. 2 Vacuum Unit Heaters (H-2101, H-2102)<sup>1</sup>

- 1. HOVENSA shall only combust refinery fuel gas, propane, butane and/or No. 6 fuel oil in No. 2 Vacuum Unit Heaters H-2101 and H-2102.

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<sup>1</sup>Not subject to PSD; included to make reductions used for netting enforceable.

Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

2. HOVENSA shall limit its combustion of No. 6 fuel oil in heaters H-2101 and H-2102 to a maximum of 260 barrels per day total.
3. The sulfur content of No. 6 fuel oil burned in the heater shall not exceed 1.0% by weight.
4. Except as modified by this permit, the provisions of the 1997 Fluid Catalytic Cracking Unit PSD permit shall continue to apply to the No. 2 Vacuum Unit.

X. Continuous Emission Monitoring (CEM) Requirements

1. Prior to the date of startup and thereafter, HOVENSA shall install, calibrate, maintain, and operate the following continuous monitoring systems in the GT No. 10 exhaust stack:
    - a. Continuous emission monitoring (CEM) systems to measure stack gas NO<sub>x</sub> (as measured NO<sub>2</sub>) and opacity concentrations. The systems shall meet EPA monitoring performance specifications (40 CFR Part 60.13 and 40 CFR Part 60, Appendix B, Performance Specifications 1, 2, and 3, and Appendix F).
    - b. A CEM system to measure CO and a continuous monitoring system to measure oxygen. These systems, at a minimum, shall meet EPA monitoring performance specifications of 40 CFR Part 60, Appendix B, Performance Specifications 3 and 4, and 40 CFR Part 60, Appendix F.
  2. Not less than 90 days prior to the date of startup of the GT No. 10, HOVENSA 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. HOVENSA shall notify EPA 15 days in advance of the date upon which demonstration of the CEM system performance will commence (40 CFR Part 60.13(c)). This date shall be no later than sixty days after the facility's GT No. 10 startup.
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Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

4. HOVENSA 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.
5. HOVENSA shall submit a written report of all excess emissions to EPA for every calendar quarter. All quarterly reports shall be postmarked by the 30th day following the end of each quarter and shall include the information specified below:
  - a. The magnitude of excess emissions computed in accordance with 40 CFR Part 60.13(h), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions.
  - b. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions for the GT No. 10 unit. The nature and cause of any malfunction (if known) and the corrective action taken or preventive measures adopted shall also be reported.
  - c. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.
  - d. When no excess emissions have occurred or the CEM system has not been inoperative, repaired, or adjusted, such information shall be stated in the report.
  - e. Results of quarterly monitor performance audits, as required in 40 CFR Part 60, Appendix F.
  - f. Excess emissions shall be defined as:

Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

- i) any one-hour period during which the average emission of NO<sub>x</sub>, as measured by the CEM system, exceeds the corresponding mass or concentration emission limit set for NO<sub>x</sub> in Condition VIII.1 above.
  - ii) any one-hour period during which the average emission of CO, as measured by the CEM system, exceeds the corresponding mass or concentration emission limit set for CO in Condition VIII.2 above.
  - iii) any 6-minute period during which the average opacity, as measured by the CEM system, exceeds 10% opacity, except for one 25% opacity per each one-hour period.
  - iv) any rolling 365-day period during which total emissions of NO<sub>x</sub> or CO, as measured by the CEM system exceeds the corresponding annual emission limits set in Conditions VIII.1.b. and VIII.2.c., respectively.
- g. For the purposes of this permit, excess emissions indicated by the CEM systems, except during startup or shutdown, shall be considered violations of the applicable emission limits.
6. HOVENSA shall maintain a file of all measurements, including CEM system performance evaluations; all CEM systems or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by 40 CFR Part 60 recorded in a permanent form suitable for inspection. The file shall be retained for at least five years following the date of such measurement, maintenance, reports, and records.
7. Emissions in excess of the applicable emission limit listed under Condition VIII. of this permit, during periods of startup and shutdown, shall not be considered a violation of the applicable emission limit.
8. For the purposes of this permit, startup and shutdown shall be defined as:

Startup - The establishment of a 12.5 MW load to the turbine and operation of the steam injection system. The startup process shall not exceed one hour.

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Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

Shutdown - The removal of electrical load to the turbine. The shutdown process shall not exceed one hour.

9. HOVENSA shall continuously calculate the NO<sub>x</sub> and CO mass emission rates for GT No. 10. HOVENSA shall submit to EPA for approval the proposed methodology for this calculation at the same time the Quality Assurance Project Plan required by Condition X.2 is submitted. The calculated mass emission rates shall be used to determine compliance with the NO<sub>x</sub> and CO mass emission rate limits contained in Condition VIII.
10. At all times, including periods of startup, shutdown, and malfunction, HOVENSA shall, to the extent practicable, maintain and operate the GT No. 10 in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to EPA and/or VIDPNR which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the facility.
11. In each quarterly report, HOVENSA shall maintain 95% quality data availability for the opacity monitor and all gaseous monitors.

XI. Performance Test Requirements

1. Within 60 days after achieving the maximum production rate of GT No. 10, but no later than 180 days after initial startup as defined in 40 CFR Part 60.2, and at such other times as specified by the EPA, HOVENSA shall conduct performance tests for SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, CO, and opacity. All performance tests shall be conducted at the maximum operating capacity of the unit(s) being tested, except for CO, and/or other loads specified by EPA.
2. At least 60 days prior to actual testing, HOVENSA shall submit to the EPA a Quality Assurance Project Plan detailing methods and procedures to be used during the performance stack testing. A Quality Assurance Project Plan that does not have EPA approval may be grounds to invalidate any test and require a re-test.

Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

3. If a performance test is required by EPA or VIDPNR, HOVENSA shall use the following test methods, or a test method which would be applicable at the time of the test and detailed in a test protocol approved by EPA:
  - a. Performance tests to determine the stack gas velocity, sample area, volumetric flowrate, molecular composition, excess air of flue gases, and moisture content of flue gas shall be conducted using 40 CFR Part 60, Appendix A, Methods 1, 2, 3, and 4.
  - b. Performance tests for the emissions of SO<sub>2</sub> shall be conducted using 40 CFR Part 60, Appendix A, Method 20.
  - c. Performance tests for the emissions of NO<sub>x</sub> shall be conducted using 40 CFR Part 60, Appendix A, Method 20.
  - d. Performance tests for the emissions of PM<sub>10</sub> shall be conducted using 40 CFR Part 51, Appendix M, Method 201 (exhaust gas recycle) and Method 202 or Method 201A (constant flow rate) and Method 202.
  - e. Performance tests for the emissions of CO shall be conducted using 40 CFR Part 60, Appendix A, Method 10.
  - f. Performance tests for the visual determination of the opacity of emissions from the stack shall be conducted using 40 CFR Part 60, Appendix A, Method 9 and the procedures stated in 40 CFR Part 60.11.
4. Test results indicating that emissions are below the limits of detection shall be deemed to be in compliance.
5. Additional performance tests may be required at the discretion of the EPA or VIDPNR for any or all of the above pollutants.
6. For performance test purposes, sampling ports, platforms and access shall be provided by HOVENSA on the combustion exhaust system in accordance with 40 CFR Part 60.8(e).

Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

7. Results of emission testing must be submitted to EPA within 60 days after completion of performance tests.
8. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.

XII. Other Requirements

1. The maximum heat input of GT No. 10 shall not exceed 325 MMBTU/hour.
2. GT No. 10 shall not be operated below 50% load (12.5 MW), except during startups and shutdowns.
3. HOVENSA shall monitor and record the fuel consumption and the ratio of the steam to fuel being fired in GT No. 10.
4. For fuels that are intermediately stored in tanks, HOVENSA shall determine the sulfur content, through laboratory analysis, each time there is a transfer of fuel to the storage tanks.
5. HOVENSA shall determine and record daily the sulfur content of the liquid fuels that are directly transferred from a process unit.
6. HOVENSA shall monitor flows for all fuels fired by GT No. 10.
7. HOVENSA shall determine the total heat content (higher heating value in BTU) of each fuel fired during each hour. Heat input shall be calculated from the total fuel flow and the heating value (in BTU per cubic foot or per gallon) of that fuel. The fraction of an hour of use of each fuel shall be calculated as the ratio of the heating value of that fuel to the total heating value of all fuels used during the hour. The emission rate (in lb/mmBtu) of the monitored NO<sub>x</sub> and CO concentrations shall be determined using EPA Method 19 procedures. Mass emissions of NO<sub>x</sub> and CO (in lb/hr and tons/year) shall be calculated by multiplying the emission rate by the hourly heat input.
8. All fuel flow meters used to determine the heat input to GT No. 10 shall be calibrated using the procedures of 40 CFR Part 75, Appendix D or equivalent.



Attachment II

HOVENSA, L.L.C.  
GT No. 10  
PSD Permit Conditions

9. GT No. 10 shall comply with the requirements codified in Standards of Performance for Stationary Gas Turbines (40 CFR Part 60, Subpart GG).
10. HOVENSA shall meet all other applicable federal, state and local requirements, including those contained in the Virgin Islands State Implementation Plan (VISIP).
11. All reports required by this permit shall be submitted to:

Chief, Air Compliance Branch  
Division of Enforcement and Compliance Assistance  
U.S. Environmental Protection Agency  
Region 2  
290 Broadway - 21st Floor  
New York, New York 10007-1866

Copies of the reports shall also be submitted to:

Region 2 CEM Coordinator  
U.S. Environmental Protection Agency  
Region 2  
Air and Water QA Team  
Monitoring and Assessment Branch  
2890 Woodbridge Avenue - MS-102  
Edison, New Jersey 08837-3679

Director, Division of Environmental Protection  
Virgin Islands Department of Planning and Natural Resources  
45 Mars Hill  
Frederiksted, VI 00840-4744

