



Orlando CoGen Limited, L.P.
8275 Exchange Drive
Orlando, FL 32809

cc: Lennon
5/26



Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, PA 18195-1501

21 May 1998

Mr. Scott M. Sheplak, P.E.
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Comments, DRAFT Title V Permit No.: 0950203-001-AV
Orlando CoGen Limited, L.P.

Dear Mr. Sheplak:

We appreciate the opportunity to comment on the Department's draft Title V permit for our Orlando cogeneration facility. Many of the comments that follow are administrative in nature and arise out of the fact that several minor modifications were made to the operating permit by the Central District office following the Title V application. Copies of the changes as well as the original operating permit are attached for your reference. Also attached are two other documents bearing on the draft permit: an approved Subpart GG custom fuel monitoring schedule, and DARM guidance relevant to source testing requirements at our plant.

As you review these comments, if there are any questions or a need for additional information, please call me at 407-851-1350 for questions regarding general plant operations, or Tom Hess at 610-481-7620 for questions regarding the enclosed comments. If it would be helpful to meet in person to discuss the draft permit, I would be happy to do so at your convenience.

Very truly yours,

Larry J. Adkins
Plant Manager
Authorized Representative
(Designated Acid Rain Representative)

RECEIVED

MAY 22 1998

BUREAU OF
AIR REGULATION

E.U. ID No. 001 Combustion Turbine (CT)

Page 1, Referenced attachments

Referenced attachments made part of this permit:

Comment

Orlando CoGen has an EPA approved customized fuel monitoring schedule, 40 CFR §60.335(d), which we believe should be included in this list. The approval letter and the schedule are attached as Appendix 1.

(Please also refer to later comments regarding condition A.16 on page 9 of the permit.)

E.U. ID No. 001 Combustion Turbine (CT)

Page 6, Condition A.2.

Turbine Cleaning. The turbine compressors shall be cleaned only with Turbotect 927 while the turbine is operating (i.e., on-line) at a dilution ratio of 9 gallons of cleaner to 35 gallons of demineralized water. Cleaning of the on-line compressors shall be performed every 4 days. The Turbotect 927 usage shall not exceed 821 gallons per 12-month rolling average.

Comment

We request that this newly added condition be deleted. In the Title V application (6/9/96), it was stated that the turbine is periodically injected with a cleaner that consists of detergents and surfactants that clean the inlet compressor sections of the turbine (Part III, page 25 of the application). A subsequent letter from the Department, 1/14/97, requested additional information about the turbine washing process. On or about 4/9/97, Mr. Ken Kosky responded with additional information describing the plant's then current on-line turbine washing process. In his letter, Mr. Kosky explained that the compressor cleaner is completely consumed as a result of combustion in the turbine and that the undiluted material contained no hazardous air pollutants.

This draft permit prescribed turbine cleaning condition is not necessary to control air pollution and would add unnecessary administrative burden to the plant as well as the Department. For example, minor changes in labeling such as simply renaming the product or buying the same material from a different vendor would require amending the permit. Indeed this has already happened, the same cleaning material is now distributed by a different company and has been re-labeled CONNTECT 7000. Even minor adjustment of the dilution ratio would trigger the requirement for a permit change.

With regard to the requirement to perform an on-line wash every 4 (operating) days, the turbine manufacturer's recommendations or other circumstance may in the future require changes in the frequency. This in turn would require an administrative change to the permit.

These new restrictions to on-line compressor washing are too inflexible and burdensome and do not contribute to the control of emissions. In addition to no practical benefit, it also does not appear that there is a regulatory basis for this requirement. We therefore ask that the Department remove this condition.

(Please refer also to comments to related condition C.31.)

E.U. ID No. 001 Combustion Turbine (CT)

Page 8, Condition A.11.

Compliance tests shall be conducted on an annual basis on or within 60 days prior to September 8 for Specific Conditions A.12. through A.14.

Comment

The requirement to perform the tests within 60 days prior to September 8 in AO48-248669 was changed by the Department to "...within 60 days prior to April 1". Letter of 6 December 1996 from Mr. L.T. Kozlov, P.E., Program Administrator, Air Resources Management, Department of Environmental Protection, Central District to Mr. John Paul Jones, President Orlando CoGen Limited, L.P. (Appendix 2).

We request that this condition be modified to reflect the new test date.

E.U. ID No. 001 Combustion Turbine (CT)

Page 8, Condition A.12.

Nitrogen Oxides. The owner or operator shall determine compliance with nitrogen oxides as follows:

a. The nitrogen oxides emission rate (NO_x) shall be computed for each run using the following equation:

$$NO_x = (NO_{xo})(Pr / Po)^{0.5} e^{19(H_o - 0.00633)} (288^\circ K / T_a)^{1.53} \dots\dots$$

b. EPA Method 20 (40 CFR 60, Appendix A) shall be used to determine the nitrogen oxides, and oxygen concentrations. The span values used shall be 300 ppm of nitrogen oxide and 21 percent oxygen. The NO_x emissions shall be determined at 30, 50, 75 and 100 percent of peak load or at four points in the normal operating range of the gas turbine....

Comment

Load and ISO Correction

The requirements to adjust measured NO_x concentrations to ISO conditions using the cited equation and to conduct NO_x emission tests at less than maximum load were eliminated in a modification to permit AO48-248669. The current operating permit does not require ISO equation adjustment to measured NO_x and only requires tests to be conducted at "capacity" (letter of 19 July 1996 from Mr. L.T. Kozlov, P.E., Program Administrator, Air Resources Management, Department of Environmental Protection, Central District to Mr. John Paul Jones, President Orlando CoGen Limited, L.P.) (Appendix 3). These changes to the operating permits implemented DARM-EM-05 "Guidance on Rate of Operation During Compliance Testing for Combustion Turbines" (Appendix 4).

We request that these two requirements in the condition be modified to reflect the current requirements in the current operating permit.

Span

The requirement for the reference method analyzer to use a span of 300 ppm is problematic for the Orlando plant. Span is used to determine the allowable ranges for calibration gases required to calibrate the reference method test analyzers, determine method bias, and monitor analyzer drift. In Method 20 both linearity and bias limits are 2% of span. For a 300 ppm span the allowable error in the test method is then 6 ppm. This is 40% of the operating permit emission limit of 15 ppm. Clearly a span of 300 ppm is inappropriate in this case.¹ Further, the EPA has recast most of the reference methods (in draft form),

¹ This span is only appropriate for use with old high NO_x emitting units with actual limits at NSPS levels. For the Orlando combustion turbine with an approximate heat rate of 11.48 kJ/W·hr, the NSPS standard for NO_x becomes $0.0075/100 \cdot 14.4/11.48 \cdot 10^6 = 94$ ppm. At this level a 300 ppm span is usable. However the operating permit limit is 15 ppm. 300 ppm span is not appropriate.

including Method 20 (February 1997), with more appropriate definitions for calibration levels and error tolerances. The draft Method 20 now refers to Method 6C for selection of appropriate calibration gases. EPA defines the high level gas as follows (Method 6C, January 1997):

3.3.1 High-Level Gas. The chosen upper concentration of the gas measurement range such that all sample concentrations are less than the high-level gas concentration and the concentrations of interest are 20-80 percent of the high-level gas value. [The concentration of interest for New Source Performance Standard (NSPS) purposes is the concentration corresponding to the emission standard.]

Thus, for an emission standard of 15 ppm, the high range calibration gas is between 19 and 75 ppm. We request that the span requirement of 300 ppm be eliminated as a permit item. Given that test method details change from time to time, we believe that they are more appropriately addressed in the pre-test plans required before each annual source test and not in the Title V permit.

Alternatively, if the Department determines that numerical calibration levels must be included in the Title V permit, we request that the following definitions (draft 6C § 3.0) be used in lieu of “300 ppm span”.

3.3.1 High-Level Gas. The chosen upper concentration of the gas measurement range such that all sample concentrations are less than the high-level gas concentration and the concentrations of interest are 20-80 percent of the high-level gas value. [The concentration of interest for New Source Performance Standard (NSPS) purposes is the concentration corresponding to the emission standard.]²

3.3.2 Mid-Level Gas. Concentration equivalent to 40 to 60 percent of the high-level gas.

3.3.3 Zero Gas. Concentration of less than 0.25 percent of the high-level gas. Purified ambient air may be used for the zero gas by passing air through a charcoal filter or through one or more impingers containing a solution of 3 percent hydrogen peroxide (H₂O₂)

Using calibration gases more representative of the expected measurement values will result in greater accuracy and is consequently a more stringent requirement than that proposed in the current condition. EPA’s *White Paper Number 2*, March 5, 1996, recognizes and encourages the use or “streamling” to resolve conflicting monitoring requirements—in this case inappropriate NSPS span for low NO_x emitters.

² In the case of Orlando CoGen, the applicable emission standard is 15 ppm at 15% O₂.

E.U. ID No. 001 Combustion Turbine (CT)

Page 8, Condition A.13.

Nitrogen Dioxide. The emission test sampling points will be selected in accordance with 6.1.2.4 of Method 20, which states-Select the eight sampling points at which the lowest O₂ concentrations were obtained. If the difference between the highest and lowest measured oxygen concentration in the stack is less than 0.4% oxygen by volume, it may be assumed that stratification does not exist.

Comment

§ 6.1.2.4 further states that: "More than eight points may be used, if desired, providing that the points described above are included." As currently written, condition A.13. may be interpreted to restrict sampling to only those 8 points described. We request that this condition be clarified by adding that more than 8 point may be used provided that the 8 specified are included.

E.U. ID No. 001 Combustion Turbine (CT)

Page 9, Condition A.16.

The owner or operator of any stationary source gas turbine subject to the provisions of 40 CFR 60, Subpart GG shall monitor sulfur content...

(2)Owners, or fuel vendors may develop custom schedules for determination of the values...These custom schedules ...must be approved by the Administrator....

Comment

EPA in their letter of 17 September 1993 from Mr. J.A. Harper, Chief Air Enforcement Branch to Mr. C.H. Fancy, Air Resources Management Division, Florida DEP approved a customized fuel monitoring schedule for Orlando CoGen. The approval and schedule are attached. Please also refer to comment regarding page 1, "attachments made a part of this permit".

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Page 11, Condition B.6.

Compliance tests shall be conducted on annual basis on or within 60 days prior to September 8 for Specific Condition B.7.

Comment

The requirement to perform the tests within 60 days prior to September 8 in AO48-248669 was changed by the Department to "...within 60 days prior to April 1". Letter of 6 December 1996 from Mr. L.T. Kozlov, P.E., Program Administrator, Air Resources Management, Department of Environmental Protection, Central District to Mr. John Paul Jones, President Orlando CoGen Limited, L.P. (Appendix 2).

We request that this condition be modified to reflect the new test date.

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Page 12, Condition B.7.

To determine compliance with the emission limit for nitrogen oxides for duct burners.. The nitrogen oxides emission rate from the combined cycle system shall be calculated by subtracting the nitrogen oxides emission rate measured at the sampling site at the outlet from the turbine from the turbine from the nitrogen oxides emission rate measured at the sampling site at the outlet from the steam generating unit. [AC48-206720 and 40 CFR 60.45b(f)].

Comment

We request that a clarifying statement be added to the effect that the duct burner's NOx emissions will be calculated from test results using the procedures in Method 19. As an editorial matter, it appears that the citation 40 CFR 60.45b(f) should be instead 40 CFR 60.46b(f).

E.U. ID No. 001 Combustion Turbine (CT)

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Page 15, Condition C.11.

*Unless otherwise stated in the applicable emission limiting standard rule, testing of emissions shall be conducted with the emissions unit operation at permitted capacity as defined below... **Permitted capacity** is defined as 90 to 100 percent of the maximum operation rated allowed by the permit.*

Comment

DARM-EM-05 "Guidance on Rate of Operation During Compliance Testing for Combustion Turbines" (Appendix 4) allows, at the request of the permittee, for operation of combustion turbines during compliance testing at 95-100% of the manufacturer's rated heat input achievable for the average ambient air temperature. Orlando CoGen requested the inclusion of this condition in its operating permit. This change was incorporated by letter dated 19 July 1996 from Mr. L.T. Kozlov, P.E., Program Administrator, Air Resources Management, Department of Environmental Protection, Central District to Mr. John Paul Jones, President Orlando CoGen Limited, L.P. (Appendix 3).

With respect to the operation of the duct burners during compliance testing, **permitted capacity** should continue to be defined as in the regulation to be 90 to 100% of the maximum operating rate allowed by the permit.

We therefore request that this condition be modified to reflect the current operating permit requirements for operation of the facility during compliance testing. For the combustion turbine, permitted capacity should be defined as 95 to 100 percent of the maximum heat input allowed and achievable for the ambient air temperature during the test. For the duct burner, permitted capacity should remain as defined between 90 to 100 percent of the operation rate allowed by the permit.

E.U. ID No. 001 Combustion Turbine (CT)

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Pg. 18, Condition C.17

Compliance tests shall be conducted on an annual basis or within 60 days prior to September 8 for Specific Conditions C.18 through C.21. Tests shall be conducted for CT only, and CT plus DB.

Comment

The requirement to perform the tests within 60 days prior to September 8 in AO48-248669 was changed by the Department to "...within 60 days prior to April 1". Letter of 6 December 1996 from Mr. L.T. Kozlov, P.E., Program Administrator, Air Resources Management, Department of Environmental Protection, Central District to Mr. John Paul Jones, President Orlando CoGen Limited, L.P. (Appendix 2).

We request that this condition be modified to reflect the new test date.

E.U. ID No. 001 Combustion Turbine (CT)

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Pg. 18, Condition C.18, C.19, C.20, C.21

..maximum load...

Comment

Conditions C.18, C.20, and C.21 all require testing when required at “maximum load” while C.19 mentions no operating level. For the sake of clarity, we believe that it is appropriate to use the term “maximum load” as given in revised condition C.11 for “maximum load” in conditions C.18, C.19, C.20 and C.21.

E.U. ID No. 001 Combustion Turbine (CT)

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Page 20, Conditions: C.25, C.26.

C.25. The owner or operator shall notify the Central District Office of the Department, in writing, at least 15 days prior to the data on which each test....

C.26. In case of excess emissions resulting from malfunctions, Orlando CoGen Limited shall notify the Department's Central District Office in accordance...

Comment

Conditions C.25 and C.26. seem to be at odds with C.27. and Section II. Facility-wide Conditions, condition 9 (page 5), which states "*The permittee shall submit all compliance related notifications and reports required of this permit to: Orange County Environmental Protection Department...*" Also in a letter of 6 May 1996 from Mr. L.T. Kozlov, P.E., Program Administrator, Air Management, Dept. of Environmental Protection, Central District to Mr. John Paul Jones, President, Orlando CoGen Limited L.P. the requirement of C.26 was specifically changed to require notification to Orange County in lieu of the Central District. (Appendix 5).

We request that C.25. and C.26. be made consistent with C.27. and Section II. Condition 9 on page 5.

E.U. ID No. 001 Combustion Turbine (CT)

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Page 20, Conditions: C.27

compliance test report contents

(c)... as a minimum, the test report ...shall provide the following information:

11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sampling time per point.

...

16. Data on the amount pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.

Comment

Some of the stated compliance test reporting requirements are not relevant depending on the tests being performed. Take for example c(11). In Method 20, required for the annual NOx compliance test, neither measurement of velocity head nor use of a dry gas meter are involved in the method. Thus there is nothing to report regarding these two items. Further, unless particulate matter is being measured, required only under certain circumstances, there is no probe catch or impinger information to be reported as required in (c(16)).

We request that the last sentence in C.27.(c) be reworded as follows: "As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information if required by the test method:"

E.U. ID No. 001 Combustion Turbine (CT)

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Page 23, Condition C.31.

The permittee shall maintain records on the amount of Turbotect 927 used to clean the turbine compressors, including date cleaned and dilution ratio. [Rule 62-4.070(3), F.A.C.]

Comment

We request that this new condition be removed. As set forth more fully in comments to Condition A.2. (page 6 of the permit), because the amount of compressor cleaner used is not significant and is consumed by combustion in the turbine, it is not reasonable to expect that this on-line compressor washing would lead to a violation of the Department's rules or facility permit limitations. Further, limiting the plant to the use of a specifically labeled material from a specific manufacturer, as this condition does, would add an unnecessary administrative burden to the Department and Orlando CoGen without any benefit. As noted in the comment to condition A.2., the brand of turbine cleaner has already changed from Turbotect 927. It is now CONNTECT 7000.

However, if the Department continues to believe tracking the use of compressor cleaner is necessary, we propose to maintain records of: 1) the specific cleaner used, by retaining the MSDS of the material; and 2) the total quantity of the undiluted material consumed during each calendar year from purchasing records.

E.U. ID No. 001 Combustion Turbine (CT)

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Page 23, Condition C.32.

Any other operating parameters established during compliance testing and/or inspections, that will ensure proper operation of this facility, are considered part of this operating permit. Said operating parameters include, but are not limited to: Fuel flow rate and heat input rate.[Rule 62-4.070(3), F.A.C]

Comment

This condition is overly broad and there is not sufficient regulatory basis for its inclusion. The regulation cited states “*The Department may issue any permit with specific conditions necessary to provide reasonable assurance that Department rules can be met*”. This rule argues that revisions in operating permit requirements found necessary by the Department must explicitly follow the permit revision process.

We request that this condition be removed or restated.

Appendix U-1, List of Unregulated Emission Units and/or Activities

One or more emergency generators which are not subject to the Acid Rain Program and have total fuel consumption, in the aggregate, 4.4 million cubic feet per year or less of natural gas.

Comment

We believe that the single emergency natural gas-fired generator listed here may more appropriately be listed in Appendix I-1 as an insignificant unit since it falls under the categorical exemption of 210.300(3)(a)(20) and also meets the insignificance definition 62-210.300(3)(a). Also Appendix I-1, item (10), already includes "emergency generators < 32,000 gal/yr". Therefore, we request that this emergency generator be moved from Appendix U-1 to Appendix I-1 as an "emergency generator < 4.4 million standard cubic feet per year".

Appendix I-1, List of Insignificant Emission Units and/or Activities

Comments

- A) As suggested in the preceding comment regarding Appendix U-1, we believe that the emergency generator is more appropriately listed in this appendix as “emergency generator < 4.4 million standard cubic feet per year”.
- B) Item 2 on this list (“internal combustion engines-mobile sources”) should be removed. Mobile sources, at this plant a registered pickup truck, are not regulated by Title V.
- C) Item 13 on this list (“surface coating >5% VOC; 6 gal/month”) we believe should instead be “surface coating >5%; 6 gal/day, monthly average”[62-210.300(23)].

E.U. ID No. 001 Combustion Turbine (CT)

E.U. ID No. 002 Heat Recovery Steam Generator (HRSG) and Duct Burner (DB) System

Table 2-1, Summary of Compliance Requirements

Comment

The column "Frequency Base Date" lists 8-Sep for purposes of timing annual compliance tests. As noted in several prior comments, the operating permit was modified by the Department on 6 December 1996 to change the base date to 1 April for annual compliance tests.

"Testing Time Frequency" gives for PM/PM10 and VOC an annual test frequency. For the sake of clarity, it may be helpful to note in the table, as stated in the body of the permit, that annual VOC tests are only required if the individual unit CO emission standard is not met. Similarly, for PM/PM10, annual tests are required only if the VE standard for the CT alone, or the CT plus DB is not met.

Appendix H-1, Permit History/ID Number Changes

Comment

The Department should include in the permit history operating permit modifications as specified in the following documents.

- | | |
|---------|---|
| 5/6/96 | Mr. L.T. Kozlov, Central District, reporting agency changed to Orange County (Appendix 5) |
| 6/10/96 | Mr. L.T. Kozlov, Central District, clarification of excess emission requirements (Appendix 6) |
| 7/19/96 | Mr. L.T. Kozlov, Central District, change test load requirements, remove ISO adjustment and requirement for low load testing per DARM guidance (Appendix 3) |
| 12/6/96 | Mr. L.T. Kozlov, Central District, change test base date to 1 April (Appendix 2) |

Appendices

1. Customized fuel monitoring schedule
2. Operating permit amendment letter of 12/6/96
3. Operating permit amendment letter of 7/19/96
4. DARM-EM-05 Guidance on Rate of Operation During Compliance Testing for Combustion Turbines
5. Operating permit amendment letter of 5/6/96
6. Operating permit amendment letter of 6/10/96
7. Operating permit of 2/10/95

Orlando CoGen Limited, L.P.
DRAFT Permit No.: 0950203-001-AV
Facility ID No.: 0950203

Appendix 1 – Customized fuel monitoring schedule



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

SEP 17 1993

4APT-AE

Mr. Clair H. Fancy, Chief
Air Resources Management Division
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Fl 32399-2400

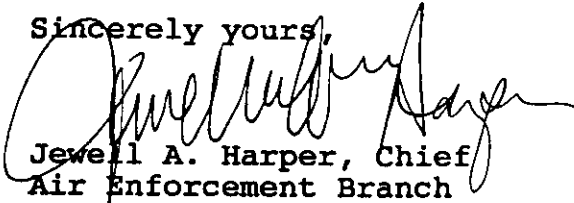
RE: Orlando CoGen Limited, L.P. (OCL)
Stationary Gas Turbines, AC 48-206720, PSD-FL-184
Customized Fuel Monitoring Schedule

Dear Mr. Fancy:

This letter is in response to OCL's July 26, 1993, request for approval of a customized fuel monitoring schedule for the above referenced project. This request was sent to the Environmental Protection Agency (EPA), and a copy was forwarded to you. Since the authority for approving alternatives to the monitoring requirements in § 60.334(b) of 40 CFR Part 60, Subpart GG, was not delegated to the State of Florida, we have reviewed OCL's custom fuel monitoring schedule. Based on our review, we have determined that it is acceptable because it conforms to custom fuel monitoring guidance (a copy of this guidance memo is enclosed) issued by EPA Headquarters in 1987. Therefore, you may modify OCL's permit accordingly. Please note that the approved reference methods are cited in 40 CFR §60.335(d), and not in 40 CFR §60.335(b)(2) as referenced in OCL's July 26, 1993, letter.

If you have any questions regarding the determination provided in this letter, please contact Mr. Mirza P. Baig of my staff at 404/347-5014.

Sincerely yours,


Jewell A. Harper, Chief
Air Enforcement Branch
Air, Pesticides, and Toxics
Management Division

Enclosure

cc: Mr. Tom Hess, Orlando CoGen Limited, L.P.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 14 1987

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: Authority for Approval of Custom Fuel Monitoring Schedules Under NSPS Subpart GG

FROM: John B. Rasnic, Chief *John B Rasnic*
Compliance Monitoring Branch

TO: Air Compliance Branch Chiefs
Regions II, III, IV, V, VI and IX

Air Programs Branch Chiefs
Regions I-X

The NSPS for Stationary Gas Turbines (Subpart GG) at 40 CFR 60.334(b)(2) allows for the development of custom fuel monitoring schedules as an alternative to daily monitoring of the sulfur and nitrogen content of fuel fired in the turbines. Regional Offices have been forwarding custom fuel monitoring schedules to the Stationary Source Compliance Division (SSCD) for consideration since it was understood that authority for approval of these schedules was not delegated to the Regions. However, in consultation with the Emission Standards and Engineering Division, it has been determined that the Regional Offices do have the authority to approve Subpart GG custom fuel monitoring schedules. Therefore it is no longer necessary to forward these requests to Headquarters for approval.

Over the past few years, SSCD has issued over twenty custom schedules for sources using pipeline quality natural gas. In order to maintain national consistency, we recommend that any schedules Regional Offices issue for natural gas be no less stringent than the following: sulfur monitoring should

be bimonthly, followed by quarterly, then semiannual, given at least six months of data demonstrating little variability in sulfur content and compliance with §60.333 at each monitoring frequency; nitrogen monitoring can be waived for pipeline quality natural gas, since there is no fuel-bound nitrogen and since the free nitrogen does not contribute appreciably to NO_x emissions. Please see the attached sample custom schedule for details. Given the increasing trend in the use of pipeline quality natural gas, we are investigating the possibility of amending Subpart GG to allow for less frequent sulfur monitoring and a waiver of nitrogen monitoring requirements where natural gas is used.

Where sources using oil request custom fuel monitoring schedules, Regional Offices are encouraged to contact SSCD for consultation on the appropriate fuel monitoring schedule. However, Regions are not required to send the request itself to SSCD for approval.

If you have any questions, please contact Sally M. Farrell at FTS 382-2875.

Attachment

cc: John Crenshaw
George Walsh
Robert Ajax
Earl Salo

Enclosure

Conditions for Custom Fuel Sampling Schedule for Stationary Gas Turbines

1. Monitoring of fuel nitrogen content shall not be required while natural gas is the only fuel fired in the gas turbine.
2. Sulfur Monitoring
 - a. Analysis for fuel sulfur content of the natural gas shall be conducted using one of the approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an approved alternative method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3246-81; and ASTM D4084-82 as referenced in 40 CFR 60.335(b)(2).
 - b. Effective the date of this custom schedule, sulfur monitoring shall be conducted twice monthly for six months. If this monitoring shows little variability in the fuel sulfur content, and indicates consistent compliance with 40 CFR 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.
 - c. If after the monitoring required in item 2(b) above, or herein, the sulfur content of the fuel shows little variability and, calculated as sulfur dioxide, represents consistent compliance with the sulfur dioxide emission limits specified under 40 CFR 60.333, sample analysis shall be conducted twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.
 - d. Should any sulfur analysis as required in items 2(b) or 2(c) above indicate noncompliance with 40 CFR 60.333, the owner or operator shall notify the State Air Control Board of such excess emissions and the custom schedule shall be re-examined by the Environmental Protection Agency. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.
3. If there is a change in fuel supply, the owner or operator must notify the State of such change for re-examination of this custom schedule. A substantial change in fuel quality shall be considered as a change in fuel supply. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.
4. Records of sample analysis and fuel supply pertinent to this custom schedule shall be retained for a period of three years, and be available for inspection by personnel of federal, state, and local air pollution control agencies.

Orlando CoGen Limited, L.P.
DRAFT Permit No.: 0950203-001-AV
Facility ID No.: 0950203

Appendix 2 – Operating permit amendment letter of 12/6/96



Department of Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

Orlando Cogen Limited L.P.
7201 Hamilton Boulevard
Allentown, PA 18195-1501

Attention: John P. Jones, President

Orange County - AP
Combined Cycle Gas Turbine
Permit No. AO48-248669
Change of Conditions

Dear Mr. Jones:

We are in receipt of a request for a change of the permit conditions. The conditions are changed as follows:

Condition

Specific Condition No. 11

From

... within 60 days prior to September 8 ...

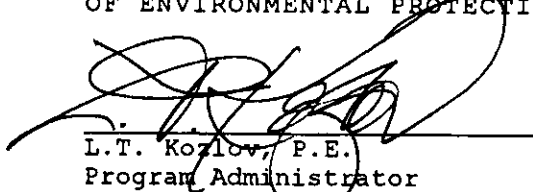
To

... within 60 days prior to April 1 ...

All other conditions remain the same.

This letter must be attached to your permit and becomes a part of that permit.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


L.T. Kozlov, P.E.
Program Administrator
Air Resources Management

Issued: 12-6-96

13
LTK/jtt

copies furnished to:

Dennis Nester

Orlando CoGen Limited, L.P.
DRAFT Permit No.: 0950203-001-AV
Facility ID No.: 0950203

Appendix 3- Operating permit amendment letter of 7/19/96



Department of Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

Orlando Cogen Limited L.P.
7201 Hamilton Boulevard
Allentown, PA 18195-1501

Attention: John P. Jones, President

Orange County - AP
Combined Cycle Gas Turbine
Permit No. AO48-248669
Change of Conditions

Dear Mr. Jones:

We are in receipt of a request for a change of the permit conditions. The conditions are changed as follows:

Condition

Specific Condition No. 11

From

30, 50, 75 and 100% of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load, as referenced in 40 CFR 60.335 (c)(2), Subpart GG	Peak load based on Btu input will be established and megawatts determined on the day of the test. Multiple load testing for NO _x will be performed in accordance with 40 CFR 60.335 (c)(2).
--	--

To

Subsequent annual compliance tests with No_x limits shall not require an ISO correction or testing at four load points; rather, the testing shall be done at capacity, as defined by specific condition no. 17.

Condition

Specific Condition No. 17

From

17. Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is

limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days, for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity [Rule 62-297.310(2), F.A.C.].

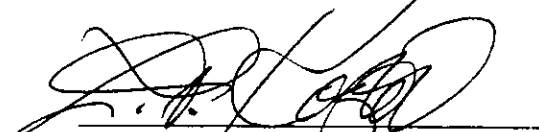
To

17. Testing of emissions shall be conducted with the emissions unit operating at capacity (maximum heat input rate for the inlet air temperature of the combustion turbine during the test). Capacity is defined as 95 - 100 percent of the manufacturer's rated heat input achievable for the average ambient (or conditioned inlet) air temperature during the test. If it is impractical to test at capacity, then the combustion turbine may be tested at less than capacity. In such case, the entire heat input vs. inlet temperature curve will be adjusted by the increment equal to the difference between the design heat input value and 105 percent of the value reached during the test. Data, curves, and calculations necessary to demonstrate the heat input rate correction at both design and test conditions shall be submitted to the Department with the compliance test report.

All other conditions remain the same.

This letter must be attached to your permit and becomes a part of that permit.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



L.T. Kozlov, P.E.
Program Administrator
Air Resources Management

Issued: 7-19-96

ab
LTK/jtt

copies furnished to:

Dennis Nester

Orlando CoGen Limited, L.P.
DRAFT Permit No.: 0950203-001-AV
Facility ID No.: 0950203

Appendix 4 – DARM-EM-05

TO: District Air Program Administrators
County Air Program Administrators

FROM: Howard L. Rhodes, Director
Division of Air Resources Management

DATE: November 22, 1995

SUBJECT: Guidance on Rate of Operation During Compliance
Testing for Combustion Turbines

This memo is to provide guidance on determining the rate of operation during compliance testing for combustion turbines (CTs).

The mass throughput rate of combustion turbines is inversely proportional to temperature and humidity measured at the CT inlet as a result of the changing air densities encountered. Inlet air temperature is the predominant factor; therefore, higher temperatures will result in a lower heat input rate (MMBtu/hr) and vice versa. The temperature is referenced to the CT inlet temperature rather than ambient temperature, as some CTs are equipped with inlet air conditioning systems (e.g., chillers or evaporative coolers) to maintain optimum operating temperature. Inlet air temperature and ambient temperature are equivalent in cases where no conditioning systems are used. Variations of heat input (capacity) are to be expected due to the range of ambient temperatures and humidities encountered in Florida. Over the usual operating ranges, the CT operating curve (capacity vs. inlet air temperature) is essentially a straight line. An owner or operator of a CT may use these curves in determining the maximum heat input rate for the unit.

The determination of the rate of CT operation during compliance testing is illustrated in the following example. The heat input limit is often referenced to 59 F, and in this example, corresponds to 750 MMBtu/hr (Point A). On the date that compliance testing is conducted, the average ambient (or conditioned) air temperature during the test period is determined to be 80 F. According to the attached curve, the maximum design heat input rate achievable is 700 MMBtu/hr (Point B). The CT has successfully achieved 90 percent of its maximum permitted capacity for this temperature if it is determined to be operating at 630 MMBtu/hr or more (Point C). In this example, the dashed line represents 90 percent of the maximum heat input value achievable over a range of inlet air temperatures. Heat input may vary depending on CT characteristics; therefore, manufacturer's curves for correction to other temperatures shall be provided to the Department, if a source intends to use the curves for compliance purposes. At the request of a permittee, the following condition shall be incorporated into the construction and corresponding operating permits:

• "Testing of emissions shall be conducted with the source operating at capacity. Capacity is defined as 95-100 percent of the manufacturer's rated heat input achievable for the average ambient (or conditioned) air temperature during the test. If it is impracticable to test at capacity, then sources may be tested at less than capacity. In such cases, the entire heat input vs. inlet temperature curve will be adjusted by the increment equal to the difference between the design heat input value and 105 percent of the value reached during the test. Data, curves, and calculations necessary to demonstrate the heat input rate correction at both design and test conditions shall be submitted to the Department with the compliance test report."

To demonstrate compliance with federal new source performance standard Subpart GG - Standards of Performance for Stationary Gas Turbines, an initial test shall be conducted at four load points and corrected to ISO conditions for comparison to the NSPS allowable. Subsequent annual compliance tests conducted to establish compliance with NOx limits that are more stringent than the NSPS standard shall not require an ISO correction or testing at four load points; rather, the testing shall be done at capacity, as defined above. However, when testing shows that NOx emissions exceed the standard when operating at capacity, the company shall recalibrate the NOx emission control system using emission testing at four loads as required in Subpart GG.

HLR/chf/h

Attachment

Orlando CoGen Limited, L.P.
DRAFT Permit No.: 0950203-001-AV
Facility ID No.: 0950203

Appendix 5 – Operating permit amendment letter of 5/6/96



0022-967

Department of Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

Orlando Cogen Limited, L.P.
7201 Hamilton Blvd.
Allentown, PA 18195-1501

Attention: John P. Jones, President

Orange County - AP
Combined Cycle Gas Turbine
Permit No. A048-248669
Change of Permit Conditions

Dear Mr. Jones:

We are in receipt of a request for a change of the permit conditions. The conditions are changed as follows:

Condition

Specific Condition No. 15

From

..the Central District office of the Department of Environmental Regulation..

To

..the Orange County Environmental Protection Department..

Condition

Specific Condition No. 16

From

..the Department's Central District office..

To

..the Orange County Environmental Protection Department..

Condition

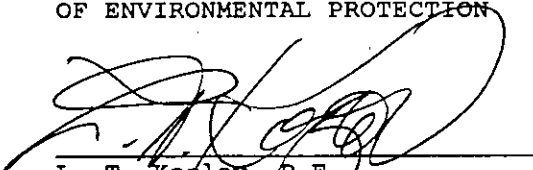
Specific Condition No. 20 - Delete

Orlando Cogen Limited, L.P.
Permit No. AO48-248669
Page Two

All other conditions remain the same.

This letter must be attached to your permit and becomes a part of that permit.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



L. T. Kozlov, P.E.
Acting Program Administrator
Air Resources Management

Issued: May 6, 1996

AS

LTK/jt
cc: Dennis Nester
Kennard F. Kosky, P.E.

5/31 - John Turner T/C

Orlando CoGen Limited, L.P.
DRAFT Permit No.: 0950203-001-AV
Facility ID No.: 0950203

Appendix 6 – Operating permit amendment of 6/10/96



cc. TODD SLODYSKI
LARRY ADKINS

Department of Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

Orlando Cogen Limited L.P.
7201 Hamilton Boulevard
Allentown, PA 18195-1501

Attention: John P. Jones, President

Orange County - AP
Combined Cycle Gas Turbine
Permit No. AO48-248669
Change of Conditions

Dear Mr. Jones:

We are in receipt of a request for a change of the permit conditions.
The conditions are changed as follows:

Condition

Specific Condition No. 20

Add

Excess emissions resulting from startup, shutdown, or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration.

Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, or malfunction shall be prohibited.

Considering operational variations in types of industrial equipment operations affected by this rule, the Department may adjust maximum and minimum factors to provide reasonable and practical regulatory controls consistent with the public interest.

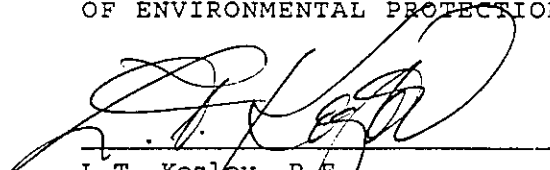
Orlando Cogen Limited L.P.
Permit No. AO48-248669
Change of Conditions
Page Two

In case of excess emissions resulting from malfunctions, each owner or operator shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department [Rule 62-210.700(1), (4), (5) & (6), F.A.C.].

All other conditions remain the same.

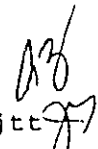
This letter must be attached to your permit and becomes a part of that permit.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



L.T. Kozlov, P.E.
Program Administrator
Air Resources Management

Issued: 6-10-96

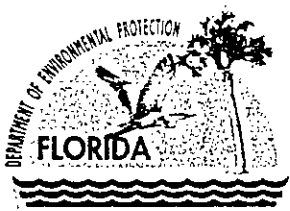

LTK/jtt

copies furnished to:

Dennis Nester
Kennard Kosky, P.E.
Bruce Mitchell

Orlando CoGen Limited, L.P.
DRAFT Permit No.: 0950203-001-AV
Facility ID No.: 0950203

Appendix 7 – Operating permit of 2/10/95



Department of Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

Permittee:
Orlando Cogen Limited, L.P.
7201 Hamilton Boulevard
Allentown, PA 18195-1501

Attention: John P. Jones, President

Permit Number: AO48-248669
Date of Issue: 2-10-95
Expiration Date: January 31,
2000
County: Orange
Latitude/Longitude:
28° 26' 23"N / 81° 24' 28"W
UTM: 17-459.5 KmE; 3146.1 KmN
Project: 128.9 MW Combined
Cycle Gas Turbine

This permit is issued under the provisions of Chapter(s) 403, Florida Statutes, and Florida Administrative Code Rule(s) 62-2. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

The permittee can operate a 128.9 MW combined cycle gas turbine cogeneration facility. The cogeneration facility consists of a combustion turbine (CT) exhausting through a heat recovery steam generator (HRSG). The transition duct from the CT to the HRSG contains duct burners (DBs) with a maximum heat input of 122 MMBtu/hr.

This facility is located in the Orlando Central Park, Orange County, Florida, and will supply steam to the adjacent Air Products and Chemicals plant.

General Conditions are attached to be distributed to the permittee only.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in this permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times, access to the premises where the permitted activity is located or conducted to:
 - (a) Have access to and copy any records that must be kept under conditions of the permit;
 - (b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
 - (c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - (a) A description of and cause of noncompliance; and
 - (b) The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

GENERAL CONDITIONS:

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.
10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Rule 62-4.120 and 62-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
 - (X) Determination of Best Available Control Technology (BACT)
 - (X) Determination of Prevention of Significant Deterioration (PSD)
 - () Certification of compliance with state Water Quality Standards (Section 401, PL 92-500)
 - (X) Compliance with New Source Performance Standards
14. The permittee shall comply with the following:
 - (a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - (b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - (c) Records of monitoring information shall include:
 1. the date, exact place, and time of sampling or measurements;
 2. the person responsible for performing the sampling or measurements;
 3. the dates analyses were performed;
 4. the person responsible for performing the analyses;
 5. the analytical techniques or methods used;
 6. the results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

Permittee: Orlando Cogen Limited
L.P.
Attention: John P. Jones,
President

Permit Number: AO48-248669
Date of issue:
Expiration Date: January 31, 2000

ORLANDO COGEN

SPECIFIC CONDITIONS

OPERATING CONDITIONS

1. The CT (combustion turbine) is permitted to operate continuously (8,760 hours per year). [Pursuant to permit application]
2. The HRSG-DB (heat recovery steam generator-duct burner) is permitted to operate for 3688 hours per year at a maximum heat input rate of 122.0 MMBtu/hr for a maximum heat input of 450,000 MMBtu/yr (Note: the unit may operate at lower rates for more hours within the annual heat input limit). [Pursuant to permit application]
3. The CT and HRSG-DB are permitted to fire natural gas only. [Pursuant to permit application]
4. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follow:

Maximum heat input to the CT shall not exceed 856.9 MMBtu/hr at ISO conditions.

Maximum heat input to the HRSG-DB shall not exceed 122.0 MMBtu/hr and 450,000 MMBtu/yr.

5. Any change in the method of operation, equipment or operating hours which affects air emissions shall be submitted to the Department's Bureau of Air Regulation and the Central Florida District office for prior approval.
6. Any other operating parameters established during compliance testing and/or inspections, that will ensure the proper operation of this facility, are considered part of this operating permit. Said operating parameters include, but are not limited to: Fuel flow rate and heat input rate.
7. The permittee shall not cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor. (Rule 62-296.320(2), F.A.C.)
8. This source must be properly operated and maintained [Rule 62-210.300(2), F.A.C.]. No person shall circumvent any pollution control device or allow the emissions of air pollutants without the applicable air pollution control device operating properly [Rule 62-210.650, F.A.C.].

EMISSION LIMITS

9. The maximum allowable emissions from this facility shall not exceed the emission rates listed in Table 1 below

Permittee: Orlando Cogen Limited
 L.P.
 Attention: John P. Jones,
 President

Permit Number: AO48-248669
 Date of issue:
 Expiration Date: January 31, 2000

Table I

Pollutant	Source	Allowable Emission Standard/Limitation
NO _x	CT	15 ppmvd @ 15% O ₂ (57.4 lb/hr; 251.4 tpy)
	DB	0.1 lb/MMBtu (12.2 lb/hr; 22.5 tpy)
	CT/DB	24-hour rolling average
CO	CT	10 ppmvd; (22.3 lb/hr; 92.1 tpy)
	DB	0.1 lb/MMBtu (12.2 lb/hr; 22.5 tpy)
PM/PM10	CT	0.01 lb/MMBtu (9.0 lb/hr; 39.4 tpy)
	DB	0.01 lb/MMBtu (1.2 lb/hr; 2.2 tpy)
VOC	CT	3.0 lb/hr; 13.0 tpy
	DB	3.7 lb/hr; 6.8 tpy
VE	CT/DB	Less than or equal to 10% opacity

- NOTE: 1. CT - Combustion Turbine
 DB - Duct Burner
 2. Natural Gas usage only in the CT and DB.
 3. Hours of operation:
 a. CT - 8760 hrs/yr
 b. DB - 3688 hrs/yr (at a maximum heat input of 122.0 MMBtu/hr)
 4. Maximum heat input:
 a. CT - 856.9 MMBtu/hr
 b. DB - 122.0 MMBtu/hr; 450,000 MMBtu/yr
 5. DB operation planned when ambient temperature is greater than 59°F.
10. Visible emissions shall never exceed 10 percent opacity. [Pursuant to Construction Permit AC48-206720]

COMPLIANCE DETERMINATION

11. Compliance with the NO_x, CO and visible emission standards shall be determined by the following reference methods as described in 40 CFR 60, Appendix A (July 1, 1990) and adopted by reference in Rule 62-297, F.A.C.
- a. Method 1 - Sample and Velocity Traverses
 - b. Method 2 - Volumetric Flow Rate
 - c. Method 5 - Determination of Particulate Emissions from
or 17 Stationary Sources
 - d. Method 9 - Visual Determination of the Opacity of Emissions
from Stationary Sources
 - e. Method 10 - Determination of the Carbon Monoxide emissions
from Stationary Sources
 - f. Method 20 - Determination of Nitrogen Oxides, Sulfur Dioxide
and Diluent emissions from Stationary Gas
Turbines

Permittee: Orlando Cogen Limited
 L.P.
 Attention: John P. Jones,
 President

Permit Number: AO48-248669
 Date of issue:
 Expiration Date: January 31, 2000

Note: Other test methods may be used for compliance testing only after prior Department written approval.
 Compliance with the total volatile organic compound emission limits will be assumed, provided that the CO allowable emission rate is achieved; specific VOC compliance testing is not required. Compliance tests shall be conducted on an annual basis on or within 60 days prior to September 8 for each parameter marked (A) in the following table:

PARAMETER	TEST METHOD
NO _x (A)	Method 20* with F factor for results in pounds per million Btu. Stack concentrations of NO _x will be corrected with the ISO correction equation in Specific Condition 14 of this permit.
VOC (A)	Method 25A. VOC will be tested simultaneously with NO _x , CO and VE at maximum load. Not required if CO limit is met.
CO (A)	Method 10. CO will be tested simultaneously with NO _x , VOC and VE at maximum load. Tests will be conducted for CT only, and CT plus DB. CO test will be three test runs, with each test run to be a minimum of one hour as required by 62-297.310(1) and 62-297.330(1)(a)
VE (A)	Method 9. two one-hour VE tests while firing gas at maximum load. One hour with DB on, one hour with DB off. VE readings will be taken simultaneously. with tests for NO _x , CO and VOC.

PARAMETER	METHOD OF DETERMINATION
Fuel Type	Natural Gas.
Btu Per Pound of Fuel (A)	Fuel Analysis both low and high. Btu input for CT calculated using lower heating value. Btu input for DB calculated using higher heating value.
CO ₂ and O ₂ (A)	Method 3A/20 to be used to measure oxygen for all test conditions.

Permittee: Orlando Cogen Limited
 L.P.
 Attention: John P. Jones,
 President

Permit Number: AO48-248669
 Date of issue:
 Expiration Date: January 31, 2000

Ambient temperature, pressure and humidity (A)	Temperature and humidity of the ambient air will be recorded by the stack test team. This is in addition to the data recorded by the computer. Pressure will be measured as ambient pressure.
30, 50, 75 and 100% of peak load or at four points in the normal operating range of the gas turbine, including the minimum point in the range and peak load, as referenced in 40 CFR 60.335 (c) (2), Subpart GG	Peak load based on Btu input will be established and megawatts determined on the day of the test. Multiple load testing for NO _x will be performed in accordance with 40 CFR 60.335 (c) (2).

* The emission test sampling points will be selected in accordance with 6.1.2.4 of Method 20, which states - Select the eight sampling points at which the lowest O₂ concentrations or highest CO₂ concentrations were obtained - . If the difference between the highest and the lowest measured oxygen concentrations in the stack is less than 0.4% oxygen by volume, it may be assumed that stratification does not exist.

A one-hour visible emissions test at peak load is required to show compliance with the 10% opacity limit on the turbine.

12. An opacity test for the combustion turbine may be substituted for the annual particulate emissions test. If however opacity values exceed 10%, then a Method 5 or 17 particulate test must be conducted on the turbine to prove compliance with the particulate emissions standard. [Pursuant to Construction Permit AC48-206720]
13. The permittee shall calibrate, maintain and operate a continuous emission monitor (CEM) in the stack to measure and record the nitrogen oxide (NO_x) emissions from this source. The continuous emission monitor must comply with 40 CFR 60, Appendix B, Performance Specification 2, (July 1, 1991 version). For the purpose of demonstrating ongoing compliance with the applicable NO_x emissions limitation in Table I, using the stack CEM, compliance is considered to occur when the NO_x emissions are less than or equal to 57.4 lb/hr when only the CT is operating and less than or equal to 69.6 lb/hr when both the CT and DB are operating. The 24-hour rolling average compliance level is calculated based on the proportion of hours in any 24-hour period that the CT only or CT/DB are operating. Any portion of an hour that the DB operates is recognized as an hour period on the rolling average.

For example, in a given contiguous 24-hour period with 20 hours of CT operation only and 4 hours of CT/DB operation:

Calculated Emission Limitation =

$$[(57.4 \text{ lb/hr} \times 20 \text{ hrs}) + (69.6 \text{ lb/hr} \times 4 \text{ hrs})] / 24 \text{ hrs} =$$

24 hour rolling average-compliance NO_x level = 59.4 lb/hr

Permittee: Orlando Cogen Limited
L.P.
Attention: John P. Jones,
President

Permit Number: AO48-248669
Date of issue:
Expiration Date: January 31, 2000

Compliance with the permitted NO_x emission limitation is considered satisfied as long as the NO_x emissions from the stack CEM are less than or equal to the calculated NO_x emissions, averaged over the same 24-hour period.

14. During performance tests to determine compliance with the NSPS NO_x standard, the measured NO_x emission at 15% oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor, as found in 40 CFR 60.335(1) NSPS Subpart GG:

$$\text{NO}_x = (\text{NO}_x \text{ obs}) (P_{\text{ref}}/P_{\text{obs}})^{0.5} e^{19(H_{\text{obs}} - 0.00633)(288^{\circ}\text{K}/T_{\text{amb}})^{1.53}}$$

Where,

NO_x = Emissions of NO_x at 15 percent oxygen and ISO standard ambient conditions

(NO_x obs) = Measured NO_x emission at 15 percent oxygen, ppmv

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure

P_{obs} = Reference combustor inlet absolute pressure at test ambient pressure

H_{obs} = Specific humidity of ambient air at test

e = Transcendental constant (2.718)

T_{amb} = Temperature of ambient air at test

15. The permittee shall notify the Central District office of the Department of Environmental Protection, in writing, at least 15 days prior to the date on which each formal compliance test is to begin. Said notification shall include the date, time and place of each such test, as well as the name of the contact person who will be responsible for coordinating and having such tests conducted for the owner. The Department may waive the 15 day notice requirement on a case by case basis [Rule 62-297.340(1)(i), F.A.C.]. Further, the permittee shall also at that time, schedule a pre-test meeting with the Central District office to review the compliance test procedures required by this permit and 40 CFR 60, Code of Regulations.
16. A copy of the compliance test results shall be submitted to the Department's Central District office within 45 days after the last test run is complete. The test run should provide the actual heat input rate, and at least all of the information listed in Rule 62-297.570(3), F.A.C. Each test report should include a fuel oil analysis as required in 40 CFR 60.334(b). Failure to submit any of the above information may invalidate a test. [Rule 62-297.570 and 62-4.070(3), F.A.C.]
17. Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the

Permittee: Orlando Cogen Limited
L.P.
Attention: John P. Jones,
President

Permit Number: AO48-248669
Date of issue:
Expiration Date: January 31, 2000

- permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the minimum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days, for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]
18. The stack sampling facility must comply with Rule 62-297.345, F.A.C., regarding minimum requirements that include but are not limited to: location of sampling ports, work platform area hand rails and toe boards, caged ladder, access and electrical power.
 19. Combustion control shall be utilized for CO control. The permittee shall design the facility to allow for future installation of an oxidation catalyst. Once performance testing has been completed, the decision to require an oxidation catalyst will be based on a cost/benefit analysis of using such control. [Pursuant to permit application]
 20. Excess emissions resulting from startup or shutdown are permitted provided that best operational practices to minimize emissions are adhered to, and the duration of excess emissions is minimized. Excess emissions resulting from malfunction are permitted provided that best operational practices to minimize emissions are adhered to, and the duration of excess emissions is minimized, but in no case exceeds two hours in any 24-hour period unless specifically authorized by the Department for longer duration. Excess emissions which are caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction, are prohibited. [Rule 62-210.700, F.A.C.]

In the event that the permittee is temporarily unable to comply with any of the conditions of the permit, the permittee shall immediately notify the Department's Central District Office. Notification shall be conducted in accordance with General Condition (8) of this permit. In case of excess emissions resulting from malfunctions, a full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rules 62-210.700(6) and 62-4.130, F.A.C.]

can't meet permit due to breakdown of equipment

The permittee shall submit, to the Department, a written report of emissions in excess of the emission limiting standard as set forth in Rule 62-296.405(1)(a), F.A.C. for each calendar quarter. The nature and cause of the excess emissions shall be explained. This report does not relieve the permittee of the legal liability for violations. All recorded data shall be maintained on file for a period of at least two years. The information supplied in this report consistent with the reporting requirements of 40 CFR 60.7. The report shall be submitted within 30 days following the end of

found fuel steam generator > 750 MMW VE < 20%

Permittee: Orlando Cogen Limited
L.P.
Attention: John P. Jones,
President

Permit Number: AO48-248669
Date of issue:
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the calendar quarter. [Rules 62-297.500(2) and 62-4.070(3),
F.A.C.]

RULE REQUIREMENTS

21. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, and Chapter 62-4, Florida Administrative Code.
22. This source shall comply with all requirements of 40 CFR 60, Subparts GG and Db, and Rule 62-296.800(a), F.A.C., Standards of Performance for Stationary Gas Turbines, and Standards of Performance for Industrial, Commercial and Institutional Steam Generating Units.
23. This source shall comply with Rule 62-297, F.A.C., Stationary Point Source Emission Test Procedures.
24. Pursuant to Rule 62-210.300, F.A.C., Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to, the following: fuel usage, hours of operation and air emissions. Annual reports shall be sent to the Department's Central District office. Each calendar year, on or before March 1, an Annual Operations Report, DEP Form 62-210.900(5) must be submitted for the preceding calendar year.
25. Issuance of this permit does not relieve the permittee from complying with applicable emission limiting standards or other requirements of Chapter 62-297 or any other requirements under federal, state or local law. Additional regulations may impact this facility at some future date. The permittee shall comply with any applicable future regulations when they become effective. [Rule 62-210.300, F.A.C.]
25. The application to renew this operating permit shall be submitted to the Central District office of the Department of Environmental Protection at least 60 days prior to the expiration date of this permit. [Rules 62-4.050(2) and 62-4.090(1), F.A.C.]

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Charles M. Cullins
for William M. Bostwick, Jr., P.E.
Acting District Director

ISSUED: 2-10-95



Department of Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

Orlando Cogen Limited, L.P.
7201 Hamilton Boulevard
Allenton, PA 18195-1501

OCD-AP-95-44

Attention: John P. Jones, President

Orange County - AP
Permit Number: AO48-248669
128.9 MW Combined Cycle Gas Turbine

RECEIVED
A.P.C.I.

FEB 24 1995

ENVIRONMENTAL/ENERGY
DIVISION

Dear Mr. Jones:

On February 14, 1995 permit number AO48-248669 was mailed to you with incorrect page numbers. Please replace with the attached pages 4 to 9.

We apologize for the inconvenience.

Sincerely,

Charles M. Collins

Charles M. Collins, P.E.
Program Administrator
Air Resources Management

Date: 2-20-95

Attachments
CMC/dj