



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

cc: Linnon
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)

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**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:

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

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 $0.0075/100 \cdot 11.48/11.48 \cdot 10^6 = 94$ 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:"

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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