Barbara \ File

-permit file-

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

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

17 February 2000

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation, Title V Section
Mail Station #5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Orlando CoGen Limited, L.P.
Facility ID No.: 0950203
Permit No.: 0950203-001-AV
Change of responsible official

Gentlemen:

This letter is to request an administrative change to the facility's Title V operating permit. There has been a change in the responsible official from Mr. Larry J. Adkins to Mr. Todd A. Shirley, the facility's recently appointed manager. This change is effective immediately.

I, the undersigned, am the owner or authorized representative (check here [ ], if so) or the responsible official (check here [√], if so) of the Title V source addressed in this document, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this document are true, accurate and complete.*

Very truly yours,

Todd A. Shirley
Plant Manger
(407)851-1350, voice
(407)851-1686, fax

cc: Tom Hess
Todd Solodar

xcc: Orlando Central District

cc: Orange County Environmental Protection Division

* Mr. Shirley is the responsible official as a consequence of being the Federal Acid Rain Program designated representative, F.A.C. 62-210.200(247)(d)

File

Florida Department of
Environmental Protection

Memorandum

TO: Len Kozlov, Central District

FROM: for Bruce Mitchell

DATE: November 12, 1996

SUBJECT: Completeness Review of an Application Package for a Title V Operation Permit
Orlando Cogen Limited, L.P.: 0950203-001-AV

The Title V operating permit application package for the referenced facility is being processed in Tallahassee. The application was previously forwarded to your office for your files and future reference. Please have someone review the package for completeness and respond in writing by December 6, 1996 , if you have any comments. Otherwise, no response is required. If there are any questions, please call the project engineer, Lennon Anderson, at 904/488-1344 or SC:278-1344. It is very important to verify the compliance statement regarding the facility. Since we do not have a readily effective means of determining compliance at the time the application was submitted, please advise if you know of any emissions unit(s) that were not in compliance at that time and provide supporting information. Also, do not write on the documents.

If there are any questions regarding this request, please call me or Scott Sheplak at the above number(s).

RBM/bm

cc: Alan Zahm, CD

F-PROT Professional

Virus scanning report - 11. April 1997 14:08

F-PROT Professional 2.22.2 created 16. May 1996
Virus search strings created 6. March 1996

Method: Secure Scan
Search: A:\
Action: Disinfect/Query
Targets: Boot/File/Packed/Docs
Files: Standard executables
Command-line arguments: <none>

Scanning boot sector A:
Scanning volume PKBACK# 001

Results of virus scanning:

Files: 0 (0 KB)
Scanned: 0 (0 KB)
MBR's: 0
DOS boot sectors: 1

Time: 0:01

No viruses or suspicious files/boot sectors were found.

F-PROT Professional

Virus scanning report - 11. April 1997 14:07

F-PROT Professional 2.22.2 created 16. May 1996
Virus search strings created 6. March 1996

Method: Secure Scan
Search: A:\
Action: Disinfect/Query
Targets: Boot/File/Packed/Docs
Files: Standard executables
Command-line arguments: <none>

Scanning boot sector A:
Scanning volume PKBACK# 001

Results of virus scanning:

Files: 1 (66 KB)
Scanned: 0 (0 KB)
MBR's: 0
DOS boot sectors: 1

Time: 0:01

No viruses or suspicious files/boot sectors were found.

F-PROT Professional

Virus scanning report - 11. April 1997 14:07

F-PROT Professional 2.22.2 created 16. May 1996
Virus search strings created 6. March 1996

Method: Secure Scan
Search: A:\
Action: Disinfect/Query
Targets: Boot/File/Packed/Docs
Files: Standard executables
Command-line arguments: <none>

Scanning boot sector A:
Scanning volume PKBACK# 001

Results of virus scanning:

Files: 1 (66 KB)
Scanned: 0 (0 KB)
MBR's: 0
DOS boot sectors: 1

Time: 0:01

No viruses or suspicious files/boot sectors were found.

F-PROT Professional

Virus scanning report - 11. April 1997 14:07

F-PROT Professional 2.22.2 created 16. May 1996
Virus search strings created 6. March 1996

Method: Secure Scan
Search: A:\
Action: Disinfect/Query
Targets: Boot/File/Packed/Docs
Files: Standard executables
Command-line arguments: <none>

Scanning boot sector A:
Scanning volume PKBACK# 001

Results of virus scanning:

Files: 1 (66 KB)
Scanned: 0 (0 KB)
MBR's: 0
DOS boot sectors: 1

Time: 0:01

No viruses or suspicious files/boot sectors were found.

AIR PRODUCTS AND CHEMICALS, INC.
7201 HAMILTON BOULEVARD
ALLENTOWN, PA 18195-1501

AIR PRODUCTS

EES - ENVIRONMENTAL, 3RD FLOOR

FACSIMILE NO: (610) 481-2393

PLEASE DELIVER THE FOLLOWING PAGES TO:

Name: MR. SCOTT SHEPLAK

Company FLORIDA DEP

Facsimile No: 850 922 6979

Total Pages: (Includes this cover sheet) 3

From: TOM HESS (610-481-7620)

Date: 1-28-98

Comments:

ORLANDO COGEN WAIVER

If you do not receive all pages or have any problems with receiving, please call:
ELIZABETH STELTZ, (610) 481-3916.

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

AIR PRODUCTS

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

28 January 1998

Mr. Scott M. Sheplak, P.E.
Florida Department of Environmental Protection
Mail Stop 5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Sheplak:

Enclosed is a completed copy of a "Waiver of 90 Day Time Limit" for the Orlando CoGen Title V permit application.

Please call me at 407-851-1350 if you have any questions or require additional information.

Very truly yours,

L J Adkins

Larry J. Adkins
Plant Manager

January 28, 1998

WAIVER OF 90 DAY TIME LIMIT
UNDER SECTIONS 120.60(2) AND 403.0876, FLORIDA STATUTES

License (Permit, Certification) Application No. 0950203-001-AV

Applicant's Name: Orlando CoGen Limited, L.P.

With regard to the above referenced application, the applicant hereby with full knowledge and understanding of applicant's rights under Sections 120.60(2) and 403.0876, Florida Statutes, waives the right to have the application approved or denied by the State of Florida Department of Environmental Regulation within the 90 day time period prescribed by law. Said waiver is made freely and voluntarily by the applicant, with full knowledge, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Regulation.

This waiver shall expire on the 31st day of March, 1998

The undersigned is authorized to make this waiver on behalf of the applicant.

L J Adkins

Signature

Larry J. Adkins
Name

Plant Manager,
Designated Representative

AIR PRODUCTS AND CHEMICALS, INC.
7201 HAMILTON BOULEVARD
ALLENTOWN, PA 18195-1501

AIR PRODUCTS

EES - ENVIRONMENTAL, 3RD FLOOR

FACSIMILE NO: (610) 481-2393

PLEASE DELIVER THE FOLLOWING PAGES TO:

Name: MR. SCOTT M. SHEPLAK, P.E.

Company FLORIDA DEP

Facsimile No: 850-922-6979

Total Pages: (Includes this cover sheet) 3

From: TOM HESS

Date: 31 DEC 1997

Comments:

ORLANDO COGEN TIME WAIVER

If you do not receive all pages or have any problems with receiving, please call:
ELIZABETH STELTZ, (610) 481-3916.

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

AIR PRODUCTS

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

31 December 1997

Mr. Scott M. Sheplak, P.E.
Florida Department of Environmental Protection
Mail Stop 5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Sheplak:

Enclosed is a completed copy of a "Waiver of 90 Day Time Limit" for the Orlando CoGen Title V permit application. We understand that this waiver will enable the Department to process the facility's Acid Rain Phase II Permit application along with the Title V application.

Please call me at 407-851-1350 or Tom Hess at 610-481-7620 if you have any questions or require additional information.

Very truly yours,

L J Adkins

Larry J. Adkins
Plant Manager

{DATE|December 31,1997}

WAIVER OF 90 DAY TIME LIMIT
UNDER SECTIONS 120.60(2) AND 403.0876, FLORIDA STATUTES

License (Permit, Certification) Application No. 0950203-001-AV

Applicant's Name: Orlando CoGen Limited, L.P.

With regard to the above referenced application, the applicant hereby with full knowledge and understanding of applicant's rights under Sections 120.60(2) and 403.0876, Florida Statutes, waives the right to have the application approved or denied by the State of Florida Department of Environmental Regulation within the 90 day time period prescribed by law. Said waiver is made freely and voluntarily by the applicant, with full knowledge, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Regulation.

This waiver shall expire on the 31st day of January, 1998

The undersigned is authorized to make this waiver on behalf of the applicant.

Signature

Larry J. Adkins
Name

Plant Manager,
Designated Representative

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

Telephone (610) 481-4911

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

27 June, 1997

Mr. Scott M. Sheplak, P.E.
Florida Department of Environmental Protection
Mail Stop 5505
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Sheplak:

Enclosed is a completed copy of a "Waiver of 90 Day Time Limit" for the Orlando CoGen Title V permit application. We understand that this waiver will enable the Department to process the facility's Acid Rain Phase II Permit application, after it is submitted prior to 1 January 1998, along with the current Title V application.

Please call me at 407-851-1350 if you have any questions or require additional information.

Very truly yours,

L J Adkins

Larry J. Adkins
Plant Manager

cc: Tom Hess
Mr. Ken Kosky, Golder Associates

{DATE|June 27,1997}

WAIVER OF 90 DAY TIME LIMIT
UNDER SECTIONS 120.60(2) AND 403.0876, FLORIDA STATUTES

License (Permit, Certification) Application No. 0950203-001-AV

Applicant's Name: Orlando CoGen Limited, L.P.

With regard to the above referenced application, the applicant hereby with full knowledge and understanding of applicant's rights under Sections 120.60(2) and 403.0876, Florida Statutes, waives the right to have the application approved or denied by the State of Florida Department of Environmental Regulation within the 90 day time period prescribed by law. Said waiver is made freely and voluntarily by the applicant, with full knowledge, and without any pressure or coercion by anyone employed by the State of Florida Department of Environmental Regulation.

This waiver shall expire on the 1st day of January, 1998

The undersigned is authorized to make this waiver on behalf of the applicant.

Signature

Larry J. Adkins
Name

Plant Manager,
Designated Representative

DEP ROUTING AND TRANSMITTAL SLIP

TO: (NAME, OFFICE, LOCATION)

1. To: file
2. thru: Lennon Anderson
3.
4.
5.

PLEASE PREPARE REPLY FOR:

____ SECRETARY'S SIGNATURE
____ DIV/DIST DIR SIGNATURE
____ MY SIGNATURE
____ YOUR SIGNATURE
____ DUE DATE _____

ACTION/DISPOSITION

____ DISCUSS WITH ME
____ COMMENTS/ADVISE
____ REVIEW AND RETURN
____ SET UP MEETING
✓ FOR YOUR INFORMATION
____ HANDLE APPROPRIATELY
____ INITIAL AND FORWARD
____ SHARE WITH STAFF
____ FOR YOUR FILES

COMMENTS:

Re: Orlando CoGen Limited, L.P.
0950203-001-AV

The deadline for the Phase II acid rain application is January 1, 1998.

The subject facility is not part of the 'existing' acid rain units required to be issued Phase II permit by 12/31/97. The facility contains a 'new' unit.

We can pick the TV permit back up when we receive the Phase II acid rain application.

FROM: Scott Sheplak DATE: 07/01/97 PHONE:

DEP 15-026 (12/93)

{ARMS updated.}

reply to: Tom Cascio

FROM: SCOTT M. SHEPLAK, P.E.
PROFESSIONAL ENGINEER
BUREAU OF AIR REGULATION

Lawton Chiles
Governor

STATE OF FLORIDA
DEPT. OF ENVIRONMENTAL PROTECTION
DIV. OF AIR RESOURCES MANAGEMENT
MAIL STATION #5505
2600 BLAIR STONE ROAD
TALLAHASSEE, FL 32399-2400

PHONE: (904) 488-1344
FAX: (904) 922-6979
E-MAIL:
SHEPLAK_S@DEP.STATE.FL.US
WEB SITE:
http://www.dep.state.fl.us

Virginia B. Wetherell
Secretary

Re- FAX TRANSMITTAL SHEET

TO: Ken Kosky, Golder Associates

DATE: 06/19/97 ~~PHONE~~ Fax #: 352/336-6603

TOTAL NUMBER OF PAGES, INCLUDING COVER PAGE: ~~0~~ ~~0~~ 6

Re: Orlando Cogen, File No. 0950203-001-AV

COMMENTS: As we discussed we tripped the 90 day clock by asking for additional information on the Title V application. This facility contains an acid rain unit that is 'new.' The acid rain application is due by 1/1/98. Enclosed is a 90 day waiver. {Only ones I could find.}

PHONE: _____ FAX NUMBER: 304/922-6979

If there are any problems with this fax transmittal, please call the above phone number. / Sandy Knight (904) 488-1344

Facility ID No. 095202

Environmental and Energy Systems
Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, PA 18195-1501
Telephone (610) 481-4911

AIR PRODUCTS

December 21, 1995

Mr. John C. Brown (MS 5505)
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Acid Rain Phase II Permit Applications
Orlando CoGen Limited, L.P.

Dear Mr. Brown,

This letter is to clarify the Acid Rain Program Phase II permit application requirements for the Orlando CoGen Limited, L.P., facility (OCL). OCL received your November 30, 1995 letter requesting a permit application no later that January 1, 1996.

Under Chapter 62-214.200 (41) of the F.A.C. a new unit is defined as:

> "a fossil fuel-fired combustion device that commences commercial operation on or after November 15, 1990, including any such unit that serves a generator with a nameplate capacity, as defined at 40 CFR 72.2, hereby incorporated by reference, or 25 megawatts-electrical (MWe) or less or that is a simple combustion turbine."

OCL is a new unit under this definition. OCL commenced commercial operation on September 25, 1993.

Under Chapter 62-214.320 (1) (b) of the F.A.C. the Phase II permit application is due to the department "at least 24 months before the later of January 1, 2000, or the date on which the unit commences operation." Therefore the deadline for OCL is January 1, 1998.

Based on these sections of the F.A.C. OCL believes that the Phase II Acid Rain permit application is not due at this time. If you have any questions about this information please contact Mr. Tom Hess at (610) 481-7620 or the undersigned at (610) 481-5240.

Sincerely,

Karen S. Winegardner

Karen S. Winegardner
Environmental Engineer

cc: T. Hess
L. Adkins

ACIDLET.DOC

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

May 8, 1997

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Request for Additional Information Regarding Initial Title V Application
File No. 0950203-001-AV
Orlando CoGen Limited, Orange County

ATTN: Title V Section- Lennon Anderson

Dear Mr. Anderson:

This correspondence and attachment provides further clarification for my April 9th correspondence.

Combustion Turbine (Emission Unit #1) - Item 6: The "lbs" referenced in the Department's January 14, 1997 letter was apparently a data entry error. The "lbs" should be "lb S." The "S" is for sulfur. A corrected page of the application is attached.

Duct Burner System (Emissions Unit #2) - Item 8: The Maximum Annual Rate in Field 5 should be "475.687" million cubic feet per year. The original application had "475,687" which was a data entry error. The basis for the annual rate is 450,000 MMBtu/hr (LHV). A corrected page of the application is attached.

Please call if you have further questions.

Sincerely,

Kennard F. Kosky, P.E.
Principal

KFK/lcb

cc: Larry Adkins, Orlando CoGen Limited, L.P.
Tom Hess, Orlando CoGen Limited, L.P.
File (2)

14434Y/F1/WP/09

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Natural Gas Firing**	
2. Source Classification Code (SCC): **20200203**	
3. SCC Units: **Million Cubic Feet Burned**	
4. Maximum Hourly Rate: **0.129**	5. Maximum Annual Rate: **476**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **946**	
10. Segment Comment (limit to 200 characters): **Max Annual Rate = 475.687. Heat content (million Btu/SCC) based on lower heating value (LHV). Max percent sulfur: 1 grain/100 cf. Max annual rate based on heat input limit of 450,000 MMBtu/yr.**	

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: **SO2**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **2.82** lb/hour **12.4** tons/year
4. Synthetically Limited? [ ] Yes [**X**] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/yr
6. Emission Factor: **1 grain/100 cf** Reference: **Based on Natural Gas**
7. Emissions Method Code: [ ] 0 [ ] 1 [**X**] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **987,209 cf/hr x 1 grain S/100 cf x 1 lb/7,000 grains x 2 lb SO2/lb S = 2.82 lb/hr; 2.82 lb/hr x 8,760 hr/yr x 1 ton/2,000 lb = 12.4 tons/yr**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Potential SO2 emissions are the same as presented in air construction application at 20 °F. SO2 is limited by 40CFR60.333.**

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

CERTIFIED MAIL - Return Receipt Requested

January 14, 1997

Mr. Larry J. Adkins
Plant Manager
Orlando CoGen Limited, L.P.
8275 Exchange Drive
Orlando, Florida 32809

RE: Request for Additional Information Regarding Initial Title V Permit Application
File No. 0950203-001-AV
Orlando CoGen Limited, Orange County

Dear Mr. Adkins:

Your initial Title V permit application for the Orlando CoGen Limited Station was "timely and complete" for purposes of the initial Title V application submission (see Rule 62-213.420(1)(a)1. and (b)2., F.A.C.).

However, in order to continue processing your permit application, the Department will need the additional information below pursuant to Rule 62-213.420(1)(b)3., F.A.C. and Rule 62-4.070(1), F.A.C. The additional information requested is organized by topic.

Should your response to any of the items below require new calculations, please submit the new calculation, assumptions, reference material and appropriate revised pages of the application form.

Facility Information

1. The construction permit AC48-206720 lists the Standard Industrial Code (SIC) as 4931 (electric and other services combined) while the application lists the SIC as 4911 (establishments engaged in the generation, transmission, and/or distribution of electric energy for sale). Is the production of electric power less than 95 percent of the facility's total revenue? Is the facility still supplying steam to the adjacent Air Products and Chemical Plant? Was not answered.

2. Field 5 in your application under Facility Regulatory Classifications states that there are no synthetic minor source of pollutants other than HAPs. However, for the duct burner, the following pollutants are listed as synthetically limited: NOx and CO. Please explain.

Combustion Turbine (Emissions Unit #1)

3. What is the annual amount of turbine wash (in gallons) used to clean the inlet compressor sections? What are the chemical constituents? How is the turbine wash disposed? did not answer. The wash is completely consumed

4. Under Segment (Process/Fuel) Information, if 946 MMBtu per SCC unit is used, then the maximum hourly rate (field 4) and the maximum annual rate (field 5) would be 0.9059 and 7936, respectively. Please provide calculations explaining how 0.987 and 8646 were obtained for fields 4 and 5.

5. Please explain how 946 MMBtu per SCC was obtained for field 9 under Segment (Process/Fuel) Information.

resolved 050797

6. Please explain how 2.82 lb/hr was calculated with "165" as a factor in field 8 under Emissions Unit Pollutant detail information for SO_2. should be 1.

7. According to the construction permit AC48-206720, the maximum heat input for the combustion turbine is 856.9 MMBtu/hr. In field 8 for PM/PM_{10} under Emissions Unit Pollution Detail Information, please explain why 934 MMBtu/hr was used to calculate potential emissions.

Duct Burner System (Emissions Unit #2)

8. Field 5 (maximum annual rate) under Segment (Process/Fuel) Information list the rate as 475,687. Should this be 475.619? unit is to be SCC unit

050797 This should be 475.6 per Bob McCann for Golden Associate

Miscellaneous

9. According to EPA's list of activities that may be treated as "trivial", cooling towers were explicitly excluded. Please explain why this facility's cooling tower is trivial?

10. What is the annual amount of natural gas (in cubic feet) used to fire the 100kW backup generator?

Responsible Official (R.O.) Certification Statement: Rule 62-213.420, F.A.C., requires that all Title V permit applications must be certified by a responsible official. Due to the nature of the information requested above, your response should be certified by the responsible official. Please compete and submit a new R.O. certification statement page from the new long application form DEP form No. 62-210.900, effective March 21,1996 (enclosed).

Professional Engineer (P.E.) Certification Statement: Rule 62-4.050(3), F.A.C., requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. As a result, your response above should be certified by a professional engineer registered in the State of Florida. Please complete and submit a new P.E. certification statement page from the new long application form, DEP Form No. 62-210.900, effective March 21, 1996 (enclosed).

The Department must receive a response from you within 90 (ninety) days of receipt of this letter, unless you (the applicant) request additional time under Rule 62-213.420(1)(b)6., F.A.C. A copy of your response should be sent to Mr. Len Kozlov at the FDEP Central District Office, 3319 Maguire Blvd., Suite 232, Orlando FL 32803-3767.

If you should have any questions, please call Lennon Anderson or me at (904) 488-1344.

Sincerely,

John C. Brown, Jr., P.E.
Administrator
Title V Section

JCB/la/ss

Enclosures

cc: Karen Winegardner, OCL
Kennard F. Kosky, P.E., KBN
Len Kozlov, CD

KBN
A GOLDER ASSOCIATES COMPANY

Letter of Transmittal

Date: 07/01/96

Project No.: 14434-0500

To: Scott Sheplak
Florida Dept. of Environmental Prot.
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Orlando Cogen. Limited, L.P.
Title V: Orlando Cogen. Limited, L.P.

The following items are being sent to you: ☒ *with this letter* ☐ *under separate cover*

Copies	*Description*
1	Page 1 of Form hardcopy for verification
4	Air Operating Permit Application (Electronic Submittal ELSA 1.3b)

These are transmitted:

☐ *As requested*
☐ *For approval*
☐ *For review*
☐ *For your information*
☐ *For review and comment*
☒ *For Electronic Submittal*

Remarks: This is an electronic submittal of the permit application represented by page 1 of the form (attached). As indicated by the bulletin accompanying the previously submitted hard copy, original signature pages are not enclosed. They were provided with the hardcopy submittal. These disks were created using the submittal program included in ELSA 1.3b. If you have any questions, please contact Teresa Franklin or Jane Burnette.

Sender: Teresa Franklin for Ken Kosky

cc: Karen Winegardner, File(2)

14434Y/F1/WP/6.LOT (07/01/96)

6241 Northwest 23rd Street
Suite 500
Gainesville, Florida 32653-1500
352-336-5600 FAX 352-336-6603

5405 West Cypress Street
Suite 215
Tampa, Florida 33607
813-287-1717 FAX 813-287-1716

1801 Clint Moore Road
Suite 105
Boca Raton, Florida 33487
407-994-9910 FAX 407-994-9393

7785 Baymeadows Way
Suite 105
Jacksonville, Florida 32256
904-739-5600 FAX 904-739-7777

1616 'P' Street NW
Suite 350
Washington, DC 20036
202-462-1100 FAX 202-462-2270

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL 32653-1500
Telephone (352) 336-5600
Fax (352) 336-6603

April 9, 1997

Mr. Clair H. Fancy, P.E., Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Request for Additional Information Regarding Initial Title V Application
File No. 0950203-001-AV
Orlando CoGen Limited, Orange County

ATTN: Title V Section- Scott M. Sheplak, P.E. Administrator

Dear Mr. Sheplak:

On behalf of Orlando CoGen Limited, L.P., this correspondence and attachments provides the information requested in your January 14, 1997 letter regarding the initial Title V permit application for the above-referenced facility. The information provided below is presented in the same order as requested in your letter.

Facility Information

1. Standard Industrial Classification (SIC) code -- The appropriate four-digit SIC code for the facility is 4931 as listed in the construction permit (AC48-206720). The facility operates as a co-generation plant and provides less than 95 percent of energy output as electricity. This has been confirmed for 1996, where 94.6 percent of the energy output was supplied as electricity. Thus, the appropriate four-digit code is 4931. This correction has been made to the Title V application form and is attached.

2. Synthetic Minor Source of Pollutants Other than HAPs -- The facility that includes the combustion turbine and duct burner system is not synthetically limited in the amount of NO_x or CO emissions that would otherwise classify the facility as a "minor" source. However, the duct burner has a federally enforceable limitation on the total fuel usage (i.e., Specific Condition 3 of the construction permit) that limits the potential to emit for NO_x and CO. The maximum fuel usage of 450,000 million (MM)Btu/year [low heating value (LHV)] represents 3,688.525 hours of operation per year at the maximum heat input of 122 MMBtu/hr; however, the hours per year are not limited. As a result, Field 5 under Facility Regulatory Classification was checked as "No," while Fields 4 under Section H was checked "Yes."

Combustion Turbine (Emission Unit #1)

3. Turbine Wash -- The intake compressor is cleaned while the turbine is operated (i.e., on-line) at a dilution ratio of 9 gallons of cleaner to 35 gallons of demineralized water (i.e., about 20.5 percent cleaner). The cleaner currently used is Turbotech 927, which is a solvent and surfactant based

mixture that contains no hazardous air pollutants as defined in Rule 62-210.200(145)(a), Florida Administrative Code (F.A.C.). An MSDS sheet is attached. The on-line compressor cleaning results in the decomposition of the solvents and surfactants to carbon dioxide and water due to the high temperatures in the combustion zone of the turbine. The on-line compressor cleaning is performed approximately once every 4 days. This frequency results in the use of about 821 gallons of cleaner per year.

4. Segment (Process/Fuel) Information -- The 0.987 MMcf/hr of gas represents the maximum heat input at 20°F inlet turbine temperature. Since a turbine's output is inversely proportional to turbine inlet temperature, the maximum heat input occurs at the lowest temperature. However, ISO conditions (59°F and 60 percent relatively humidity) is the common benchmark for turbine performance, the basis of the New Source Performance Standards (NSPS) for Stationary Gas Turbines (40 CFR Part 60, Subpart GG) and the basis of the construction permit limits. A performance summary from 20°F to 102°F was included in the construction permit application. Attachment OR-E01-L12 includes a table from the original application that lists engine performance characteristics including fuel usage (see attached). The maximum heat input of 0.987 MMcf/hr was used to calculate a maximum annual usage at 20°F, a condition unlikely in Florida. The actual permit limit is based on ISO conditions and limits the heat input to 856.9 MMBtu/hr; this is equivalent to 0.9058 MMcf/hr and 7,935 MMcf/year. It should be noted that there is no inherent fuel usage limit for the gas turbine in the construction permit.

5. Million Btu per SCC Unit -- The 946 MMBtu/MMcf (i.e., 946 Btu/cf) represents the lower heating value (LHV) of the natural gas. This heating value was the basis of the construction permit application as listed on Page 5 of 12 of the application form (see attached).

6. Emission Unit Pollutant Detail Information SO_2 -- The 2.82 lb/hr was based on a maximum sulfur content of 1 grain/100 cf of natural gas. This is based on an evaluation of sulfur contents of natural gas received in Florida over the last 6 to 7 years. The calculation was provided in Field 8 of the Title V application (see attached page). The reference to "165" may be an error in the database and the calculation may have been inadvertently changed in the database at some point.

7. Emission Unit Pollutant Detail Information PM -- The calculation presented in Field 8 using the 934 MMBtu/hr was based on the 20°F operating condition. Because 9 lb/hr and 36.4 ton/year is based on a federally enforceable construction limit (Specific Condition 4 of the construction permit) and the "0" was checked in Field 7, the calculation shown was not necessary. Moreover, using the ISO heat input of 856.9 MMBtu/hr produces the same emissions rate when rounded-off. Since there may be confusion, this page was revised to include both calculations (see attached).

Duct Burner System (Emission Unit #2)

8. Segment (Process/Fuel) Information -- The Maximum Annual Rate listed in Field 5 should be 450,000 as provided for in Specific Condition 3 of the construction permit application. This page of the application form has been corrected and is attached.

Miscellaneous

9. Trivial and Unregulated Sources -- The original EPA trivial activities list and the trivial activities list originally developed by the Department included freshwater cooling towers. Since the final EPA trivial list does not include cooling towers, the cooling towers are being requested to be classified as an exempt emission unit by Rule 62-213.430(6) F.A.C. Attachment OR-E03-B6 has been corrected. The maximum potential emission for the cooling towers are 2.741 tons/year of PM/PM10. The calculation is as follows:

   2,500 milligram/liter (mg/L) maximum total dissolved solids
   25,000 gallons/minute circulating water rate
   0.002% of circulating water rate drift; 0.00002 of circulating water rate

   2,500 mg/L x 3.785 L/gallon x g/1,000 mg x lb/453.6 g x 25,000 gal/min x 0.00002 x 60 min/hr = 0.626 lb/hr or 2.741 tons/year

10. Trivial and Unregulated Sources -- The emergency generator is a 150 kW unit fired with natural gas at a rate of 37 cf/min. Currently, the unit is tested quarterly for about 30 minutes and during planned outages for about 1 hour as a full-load test. At other times, the emergency generator is only used when electric power is lost from both the plant and the interconnection with Florida Power Corporation. This unit should be classified as an unregulated unit and would be operated under the general exemption in Rule 62-210.300(3)(a)20. F.A.C. of 4.4 MMcf/year of natural gas.

Also attached is the certification pages for the Responsible Official and Professional Engineer that was requested with this information. Please call if you have any further questions.

Sincerely,

Kennard F. Kosky

Kennard F. Kosky, P.E.
Principal

KFK/lcb

cc: Larry Adkins, Orlando CoGen Limited, L.P.
Tom Hess, Orlando CoGen Limited, L.P.
File (2)

14434Y/F1/WP/07

Appendix H-1, Permit History/ID Number Changes

Orlando Cogeneration Limited, L.P.

[DRAFT/PROPOSED/FINAL]Permit No.: 0950203-001-AV
Facility ID No.: 0950203

Permit History (for tracking purposes):

E.U. ID No	Description	Permit No.	Issue Date	Expiration Date	Extended Date[1,2]	Revised Date(s)
-001	Combined Cycle Gas Turbine	AC48-206720/ PSD-FL-184	08/17/92	06/02/95	11/01/96	

(if applicable) ID Number Changes (for tracking purposes):

From: **Facility ID No.:** 30ORG480203

To: **Facility ID No.:** 0950203

Notes:
1 - AO permit(s) automatic extension(s) in Rule 62-210.300(2)(a)3.a., F.A.C., effective 03/21/96.
2 - AC permit(s) automatic extension(s) in Rule 62-213.420(1)(a)4., F.A.C., effective 03/20/96.
{Rule 62-213.420(1)(b)2., F.A.C., effective 03/20/96, allows Title V Sources to operate under existing valid permits}

Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

September 8, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. John P. Jones
President
Orlando CoGen (I), Inc.
Orlando CoGen Limited, L.P.
7201 Hamilton Boulevard
Allentown, PA 18195-1501

Dear Mr. Jones:

The Department received your request to extend the expiration date of the construction permit referenced below. The permit is amended as shown:

Permit No. AC 48-206720, PSD-FL-184, Orlando CoGen (I), Inc., Orlando CoGen Limited, L.P.

Current Expiration Date : December 31, 1994

New Expiration Date : June 2, 1995

This letter shall become an Attachment to Construction Permit No. AC 48-206720.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information:

(a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action;
(g) A statement of the relief sought by petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the request/application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this amendment in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, Florida Administrative Code.

A copy of this letter shall be filed with the referenced permits and will become a part of those permits.

Sincerely,

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/SA/bjb

Attachment

cc: C. Collins, CD
J. Harper, EPA
J. Bunyak, NPS
K. Kosky, KBN

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this AMENDMENT and all copies were mailed by certified mail before the close of business on 9/14/94 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to 120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Barbara J. Boutwell 9/14/94
Clerk Date

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

Mr. John P. Jones, President
Orlando CoGen (I), Inc.
Orlando CoGen Limited, L.P.
7201 Hamilton Boulevard
Allentown, PA 18195-1501

DER File No. AC 48-206720
PSD-FL-184
Orange County

/

Enclosed is Permit Number AC 48-206720 to construct a 128.9 megawatt cogeneration facility located in the Orlando Central Park, Orange County, Florida. This permit is issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on August 17, 1992 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Charlotte J. Hayes (Clerk) 8/17/92 (Date)

Copies furnished to:

C. Collins, CD
K. Kosky, P.E., KBN
J. Harper, EPA
C. Shaver, NPS
D. Nester, OCEPD
P. Cunningham, Esq. HBG&S

Final Determination

Orlando CoGen Limited, L.P.
Orange County, Florida

Construction Permit No.
AC 48-206720
(PSD-FL-184)

Department of Environmental Regulation
Division of Air Resources Management
Bureau of Air Regulation

August 17, 1992

Final Determination

Orlando CoGen Limited, L.P.

AC 48-206720 (PSD-FL-184)

The construction permit application package and supplementary material have been reviewed by the Department. Public Notice of the Department's Intent to Issue was published in The Orlando Sentinel on June 12, 1992. The Technical Evaluation and Preliminary Determination (TE&PD) was distributed on June 8, 1992, and was available for public inspection at the Department's Central District office and the Department's Bureau of Air Regulation office.

Comments were received from the applicant during the public notice period. The comments were received on July 7, 1992. The Department's response to the comments are as follows (note: each response is numbered to correspond to each comment):

1. The Department will change the permittee's name to read "Orlando CoGen Limited, L.P." instead of "Orlando Cogen Limited, L.P."

2. Since the requested change does not affect the potential emissions, a revised TE&PD will not be required. However, the comment is acknowledged.

3. Permit No. AC 48-206720 (PSD-FL-184)

a. The request is acceptable, but the specific language will be slightly different than what was requested:

SPECIFIC CONDITION No. 1:

From: The CT (combustion turbine) is allowed to operate continuously (8,760 hours per year). The HRSG-DB (heat recovery steam generator-duct burner) is permitted to operate 3688 hrs/yr at a maximum heat input of 122 x 10^6 Btu/hr.

To: The CT (combustion turbine) is allowed to operate continuously (8,760 hours per year). The HRSG-DB (heat recovery steam generator-duct burner) is permitted to operate 3688 hrs/yr at a maximum heat input of 122.0 x 10^6 Btu/hr for a maximum heat input of 450,000 x 10^6 Btu/yr (note: The unit may operate at lower rates for more hours within the annual heat input limit).

b. The request is acceptable to add a clarifier to the hours of operation.

SPECIFIC CONDITION No. 4: Table 1, Note 3b:

From: DB: 3688 hrs/yr

To: DB: 3688 hrs/yr (at a maximum heat input of 122 x 10^6 Btu/hr)

c. Except for minor particulate sources equipped with a baghouse control system, the Department does not have the authority, by rule, to substitute a visible emission standard for a mass emissions standard in accordance with Florida Administrative Code (F.A.C.) Rule 17-2.700(3)(d). However, the owner or operator of any source may request approval of alternate procedures and requirements in accordance with F.A.C. Rule 17-2.700(3)(a). Therefore, the request is not acceptable and SPECIFIC CONDITION No. 8 will not be altered.

d. The request is acceptable, which alters the original wording, but not the intent.

SPECIFIC CONDITION No. 12:

From: The permittee shall leave sufficient space suitable for future installation of SCR equipment.

To: The permittee shall design the facility to allow for future installation of SCR equipment.

e. The request is acceptable.

SPECIFIC CONDITION No. 13:

From: The permittee shall install, calibrate, maintain, and operate a continuous emission monitor in the stack to measure and record the nitrogen oxides emissions from this source. The continuous emission monitor must comply with 40 CFR 60, Appendix B, Performance Specification 2, (July 1, 1991).

To: The permittee shall install, calibrate, maintain, and operate a continuous emission monitor (CEM) in the stack to measure and record the nitrogen oxides (NOx) 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 NOx emissions limitation in Table 1, using the stack CEM, compliance is considered to occur when the NOx emissions are less than or equal to 57.4 lbs/hr when only the CT is operating and less than or equal to 69.6 lbs/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 24-hour period, with 20 hours of CT operation only and 4 hours of CT/DB operation:

Calculated Emission Limitation =

[(57.4 lbs/hr x 20 hrs) + (69.6 lbs/hr x 4 hrs)]/24 hrs =

24-hour rolling average-compliance NOx level = 59.4 lbs/hr

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

f. The request is acceptable, which alters the original wording, but not the intent.

SPECIFIC CONDITION No. 14:

From: Combustion control shall be utilized for CO control. The permittee shall leave a sufficient space suitable 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.

To: Combustion control shall be utilized to minimize CO emissions. The permittee shall design the facility to allow for the future installation of an oxidation catalyst. Once the performance test is completed and if the facility demonstrates compliance with the CO emission limits in Table 1, then an oxidation catalyst will not be required. Otherwise, the decision to require an oxidation catalyst will be based on a cost/ benefit analysis of using such control.

4. BACT Determination to Permit No. AC 48-206720 (PSD-FL-184)

a. The request is acceptable and the BACT will be revised on page 1, 1st paragraph, to reflect the product output of the combustion turbine (CT) to be 78.8 MW and the steam turbine (ST) to be 50.1 MW. Originally, the CT's output was listed as 79 MW and the ST's output as 50 MW.

b. The request is acceptable and the sentence (i.e., page 3, 2nd paragraph under "Products of Incomplete Combustion", 2nd sentence) will be deleted. The rationale is that the applicant attests that the proposed unit is a proven operation and is being permitted for a CO level lower than other recently permitted sources. Data has been submitted to substantiate CO levels from currently operating and similar units.

c. The request is acceptable, but the proposed language will be slightly different than what was requested. Therefore, the 2nd sentence, 1st paragraph, page 8-"BACT Determination by DER": NOx Control, will be revised to read:

Duct firing will be used for supplying steam and limited to operate at a full load equivalent of 3688 hrs/yr at a maximum heat input of 122.0×10^6 Btu/hr for a maximum heat input of $450,000 \times 10^6$ Btu/yr (note: The unit may operate at lower rates for more hours within the annual heat input limit).

d. The request is acceptable, but the proposed language will be slightly different than what was requested. Therefore, the 2nd sentence, 2nd paragraph, page 8-"BACT Determination by DER": CO Control, will be revised to read:

The permittee shall design the facility to allow for the future installation of an oxidation catalyst. Once the performance test is completed and if the facility demonstrates compliance with the CO emission limits, then an oxidation catalyst will not be required. Otherwise, the decision to require an oxidation catalyst will be based on a cost/benefit analysis of using such control.

e. The "Note" associated with the table "Emission Standards/ Limitations", located on page 8 of the proposed BACT Determination, will be revised to read:

Note: Natural gas firing will be used only for supplemental firing the DB for a full load equivalent of 3688 hrs/yr at 122.0 x 10^6 Btu/hr maximum heat input for a maximum heat input of 450,000 x 10^6 Btu/yr (note: The unit may operate at lower rates for more hours within the annual heat input limit).

5. Attachment to be Incorporated:

o Mr. Gary D. Kinsey's letter with enclosure received July 7, 1992.

Therefore, it is recommended that the construction permit, No. AC 48-206720 (PSD-FL-184), and associated BACT Determination, be issued as drafted, with the above referenced revisions incorporated.

Florida Department of Environmental Regulation
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400
Lawton Chiles, Governor
Carol M. Browner, Secretary

PERMITTEE:

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

Permit Number: AC 48-206720
PSD-FL-184
Expiration Date: August 31, 1994
County: Orange
Latitude/Longitude: 28°26'23"N
81°24'28"W
Project: 128.9-MW Combined Cycle Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), Florida Administrative Code (F.A.C.) Chapters 17-2 and 17-4, and 40 CFR (July, 1991 version). The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of a 128.9 MW (megawatt) combined cycle gas turbine cogeneration facility to be located in the Orlando Central Park, Orange County, Florida, and will supply steam to the adjacent Air Products and Chemicals Plant. The UTM coordinates are Zone 17, 459.5 km East and 3,146.1 km North.

The Standard Industrial Code: ~~4931 Electric and Other Services Combined~~ 4911 - Electric Generation / Distribution

2-02-002-51 Industrial Steam Turbine Cogeneration Natural Gas 10⁶ ft³ burned

The source shall be constructed in accordance with the permit application, plans, documents, amendments and drawings, except as otherwise noted in the General and Specific Conditions.

Attachments are listed below:

1. Orlando Cogen Limited, L.P.'s application received December 30, 1991.
2. Mr. C. H. Fancy's letter dated January 28, 1992.
3. Mr. Kennard F. Kosky's letter with enclosures received March 2, 1992.
4. Mr. Wayne A. Hinman's letter received via FAX May 27, 1992.
5. Mr. Kennard F. Kosky's letter with enclosure received May 27, 1992 (hand delivered).
6. Document (Table 1) received June 1, 1992, from Mr. Peter Cunningham (hand delivered).
7. 40 CFR (July, 1991 version).
8. Technical Evaluation and Preliminary Determination dated June 5, 1992.
9. Mr. Gary D. Kinsey's letter with enclosure received July 7, 1992.

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 403.161, 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 the 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 or 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.

GENERAL CONDITIONS:

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 a reasonable time, 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 the 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 non-compliance; and,

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

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.

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 Sections 403.73 and 403.111, 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.

GENERAL CONDITIONS:

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 F.A.C. Rules 17-4.120 and 17-30.300, 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)
(x) Compliance with New Source Performance Standards (NSPS)

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.

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and,
- 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 that 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.

SPECIFIC CONDITIONS:

1. The CT (combustion turbine) is allowed to operate continuously (8,760 hours per year). The HRSG-DB (heat recovery steam generator-duct burner) is permitted to operate 3688 hrs/yr at a maximum heat input of 122.0 x 10^6 Btu/hr for a maximum heat input of 450,000 x 10^6 Btu/yr (note: The unit may operate at lower rates for more hours within the annual heat input limit).

2. The CT and HRSG-DB are only allowed to use natural gas.

3. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:

- 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; 450,000 MMBtu/yr.

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

Table 1

Pollutant	Source	Allowable Emission Standard/Limitation
NOx	CT	15 ppmvd @ 15% O_2 (57.4 lbs/hr; 251.4 TPY)
	DB	0.1 lb/MMBtu (12.2 lbs/hr; 22.5 TPY)
	CT/DB	24-hr rolling average

SPECIFIC CONDITIONS:

Table 1 cont.:

CO	CT	10 ppmvd (22.3 lbs/hr; 92.1 TPY)
	DB	0.1 lb/MMBtu (12.2 lbs/hr; 22.5 TPY)
PM/PM_{10}	CT	0.01 lb/MMBtu (9.0 lbs/hr; 39.4 TPY)
	DB	0.01 lb/MMBtu (1.2 lbs/hr; 2.2 TPY)
VOC	CT	3.0 lbs/hr; 13.0 TPY
	DB	3.7 lbs/hr; 6.8 TPY
VE	CT/DB	$\leq$ 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 122.0×10^6 Btu/hr)
4. Maximum heat input:
   a. CT: 856.9×10^6 Btu/hr
   b. DB: 122.0×10^6 Btu/hr; $450,000 \times 10^6$ Btu/yr
5. DB operation planned when ambient temperature is greater than 59°F.

5. Any change in the method of operation, equipment or operating hours, pursuant to F.A.C. Rule 17-2.100, Definitions-Modification, shall be submitted to the Department's Bureau of Air Regulation and Central District offices.

6. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

7. Initial and subsequent annual compliance tests shall be performed within 10 percent of the maximum heat rate input for the tested operating temperature. Tests shall be conducted using EPA reference methods in accordance with the July 1, 1991 version of the 40 CFR 60, Appendix A.
a. EPA Method 5 for PM
b. EPA Method 10 for CO
c. EPA Method 9 for VE
d. EPA Method 20 for NOx

Note: Other test methods may be used for compliance testing only after prior Department written approval.

SPECIFIC CONDITIONS:

8. EPA Method 5 must be used to determine the initial compliance status of this unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded.

9. Compliance with the total volatile organic compound emission limits will be assumed, provided the CO allowable emission rate is achieved. Specific VOC compliance testing is not required.

10. During performance tests, to determine compliance with the proposed NOx standard, measured NOx emission at 15 percent oxygen shall be adjusted to ISO ambient atmospheric conditions by the following equation in accordance with 40 CFR 60.335(c)(1):

$$NO_X = (NO_{XO})\ (P_r/P_o)^{0.5}\ e^{19(H_o-0.00633)}\ (288°K/T_a)^{1.53}$$

where:
NO_X = Emission rate of NOx at 15 percent O_2 and ISO standard ambient conditions, volume percent.
NO_{XO} = Observed NOx emission at 15 percent oxygen, ppmv.
P_r = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure, mm Hg.
P_o = Measured combustor inlet absolute pressure at test ambient pressure, mm Hg.
H_o = Observed humidity of ambient air at test, g H_2O/g air.
e = Transcendental constant (2.718).
T_a = Temperature of ambient air at test, °K.

11. Test results will be the average of 3 valid runs. The Department's Central District office shall be notified at least 30 days in advance of the compliance test in accordance with 40 CFR 60.8(c). The source shall operate between 90% and 100% of permitted capacity as adjusted for ambient temperature during the compliance test. Compliance test results shall be submitted to the Department's Central District office no later than 45 days after completion in accordance with F.A.C. Rule 17-2.700(8)(b).

12. The permittee shall design the facility to allow for future installation of SCR equipment.

13. The permittee shall install, calibrate, maintain, and operate a continuous emission monitor (CEM) in the stack to measure and record the nitrogen oxides (NOx) emissions from this source. The continuous emission monitor must comply with 40 CFR 60, Appendix B, Performance Specification 2, (July 1, 1991 version).

SPECIFIC CONDITIONS:

For the purpose of demonstrating ongoing compliance with the applicable NOx emissions limitation in Table 1, using the stack CEM, compliance is considered to occur when the NOx emissions are less than or equal to 57.4 lbs/hr when only the CT is operating and less than or equal to 69.6 lbs/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 lbs/hr x 20 hrs) + (69.6 lbs/hr x 4 hrs)]/24 hrs =

24-hour rolling average-compliance NOx level = 59.4 lbs/hr

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

14. 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.

15. This source shall be in compliance with all applicable provisions of Chapter 403, F.S., F.A.C. Chapters 17-2 and 17-4, and the 40 CFR (July, 1991 version).

16. This source shall be in compliance with all applicable requirements of 40 CFR 60, Subparts GG and Db, in accordance with F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines and Standards of Performance for Industrial, Commercial, and Institutional Steam Generating Units.

17. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210(1)).

SPECIFIC CONDITIONS:

18. This source shall be in compliance with all applicable provisions of F.A.C. Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; 17-2.660: Standards of Performance for New Stationary Sources (NSPS); 17-2.700: Stationary Point Source Emission Test Procedures; and, 17-4.130: Plant Operation-Problems.

19. Pursuant to F.A.C. Rule 17-2.210(2), 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, air emissions limits, etc. Annual reports shall be sent to the Department's Central District office by March 1 of each year.

20. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

21. An application for an operation permit must be submitted to the Department's Central District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 17th day
of August, 1992

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Carol M. Browner, Secretary

Best Available Control Technology (BACT) Determination
Orlando CoGen Limited, L.P.
Orange County

The applicant proposes to install a combustion turbine generator at their facility in Orange County. The generator system will consist of one nominal 78.8 megawatt (MW) combustion turbine (CT), with exhaust through a heat recovery steam generator (HRSG), which will be used to power a nominal 50.1 MW steam turbine.

The combustion turbine will be capable of combined cycle operation. The applicant requested that the combustion turbine use only natural gas. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity and type of fuel fired at ISO conditions to be as follows:

Pollutant	Emissions (TPY)	PSD Significant Emission Rate (TPY)
NO_x	273.9	40
SO_2	12.0	40
PM/PM_{10}	41.7	25/15
CO	114.6	100
VOC	19.8	40
H_2SO_4	0.9	7
Be	Neg.	0.0004
Hg	Neg.	0.1
Pb	Neg.	0.6

Florida Administrative Code (F.A.C.) Rule 17-2.500(2) (f) (3) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

December 30, 1991

BACT Determination Requested by the Applicant

Pollutant	Determination
NO_x	15 ppmvd @ 15% O_2 (natural gas burning)--CT 0.1 lb/10^6 Btu--duct burner
CO	Combustion Control
PM/PM_{10}	Combustion Control

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

(a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).

(b) All scientific, engineering, and technical material and other information available to the Department.

(c) The emission limiting standards or BACT determinations of any other state.

(d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, than the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from combined cycle power plants can be grouped into categories based upon what control equipment and techniques are available to control emissions from these facilities. Using this approach, the emissions can be classified as follows:

- Combustion Products (e.g., particulates). Controlled generally by efficient combustion of clean fuels.

- Products of Incomplete Combustion (e.g., CO). Control is largely achieved by proper combustion techniques.

- Acid Gases (e.g., NO_x). Controlled generally by gaseous control devices.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "nonregulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., particulates, sulfur dioxide, fluorides, sulfuric acid mist, etc,), if a reduction in "nonregulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

Combustion Products

The projected emissions of particulate matter and PM_{10} from the Orlando CoGen Limited, L.P. facility surpass the significant emission rates given in Florida Administrative Code Rule 17-2.500, Table 500-2.

A PM/PM_{10} emissions limitations of 0.01 lb/MMBtu from the CT when firing natural gas is reasonable as BACT for the Orlando CoGen Limited, L.P. facility. The duct burner PM/PM_{10} emission rate of 0.01 lb/MMBtu is reasonable as BACT.

Products of Incomplete Combustion

The projected emissions of carbon monoxide exceed the PSD significant emission rate of 100 TPY. The applicant has indicated that the carbon monoxide emissions from the proposed turbine is based on exhaust concentrations of 10 ppmvd for natural gas firing.

A review of the BACT/LAER clearinghouse indicates that several of the combustion turbines using dry low-NOx combustion technology to control NOx to 15 ppmvd (corrected to 15 percent O_2) have been permitted with CO limitations that are higher than those proposed by the applicant. The majority of BACT emissions limitations have been based on combustion controls for carbon monoxide and volatile organic compounds. Additional control is achievable through the use of catalytic oxidation. Catalytic oxidation is a postcombustion control that has been employed in CO nonattainment areas where regulations have required CO emission levels to be less than those associated with wet injection. These installations have been required to use LAER technology and typically have CO limits in the 10-ppm range (corrected to dry conditions).

In an oxidation catalyst control system, CO emissions are reduced by allowing unburned CO to react with oxygen at the surface of a precious metal catalyst such as platinum. Combustion of CO starts

at about 300°F, with efficiencies above 90 percent occurring at temperatures above 600°F. Catalytic oxidation occurs at temperatures 50 percent lower than that of thermal oxidation, which reduces the amount of thermal energy required. For CT/HRSG combinations, the oxidation catalyst can be located directly after the CT or in the HRSG. Catalyst size depends upon the exhaust flow, temperature, and desired efficiency. The existing gas turbine applications have been limited to smaller cogeneration facilities burning natural gas.

Given the applicant's proposed BACT level for carbon monoxide of 10 ppm, a lower emission rate as BACT would not produce a significant reduction in emissions or impacts. Also, this CO concentration level is near the lowest established as BACT even with catalytic oxidation. For these reasons, it appears that the limit proposed by the applicant is reasonable as BACT.

Emission of volatile organic compounds are below the significant level and therefore do not require a BACT analysis.

Acid Gases

The applicant has stated that BACT for nitrogen oxides will be met by using dry low-NOx combustors to limit emissions to 15 ppmvd (corrected to 15% O_2) when burning natural gas.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NOx emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NOx emissions. The SCR process combines vaporized ammonia with NOx in the presence of a catalyst to form nitrogen and water. Vaporized ammonia is injected into the exhaust gases prior to passage through a catalyst bed. The SCR process can achieve up to 90% reduction of NOx with a new catalyst. As the catalyst ages, the maximum NOx reduction will decrease to approximately 86 percent.

A review of the combined cycle facilities in which SCR has been established as a BACT requirement indicates that the majority of these facilities are also intended to operate at high capacity factors. As this is the case, the proposed project is similar to other facilities in which SCR has been established as BACT.

Given the applicant's proposed BACT level for nitrogen oxides control stated above, an evaluation can be made of the cost and associated benefit of using SCR as follows:

The applicant has indicated that the total levelized annual cost (operating plus amortized capital cost) to install SCR for natural gas firing at a 100 percent capacity factor is $1,903,000. Taking into consideration the total annual cost, a cost/benefit analysis of using SCR can be developed.

Based on the information supplied by the applicant, it is estimated that the maximum annual NOx emissions with dry low-NOx combustors from the Orlando CoGen Limited, L.P. facility will be 274 tons/year. Assuming that SCR would reduce the NOx emissions to a level of 9 ppmvd when firing natural gas, about 141 tons of NOx would be emitted annually. When this reduction is taken into consideration with the total levelized annual cost of $1,900,300, the cost per ton of controlling NOx is $14,308. This calculated cost is higher than has previously been approved as BACT.

Since SCR has been determined to be BACT for several combined cycle facilities, the EPA has clearly stated that there must be unique circumstances to consider the rejection of such control on the basis of economics.

In a recent letter from EPA Region IV to the Department regarding the permitting of a combined cycle facility (Tropicana Products, Inc.), the following statement was made:

> "In order to reject a control option on the basis of economic considerations, the applicant must show why the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant."

For fuel oil firing, the cost associated with controlling NOx emissions must take into account the potential operating problems that can occur with using SCR in the oil firing mode.

A concern associated with the use of SCR on combined cycle projects is the formation of ammonium bisulfate. For the SCR process, ammonium bisulfate can be formed due to the reaction of sulfur in the fuel and the ammonia injected. The ammonium bisulfate has a tendency to plug the tubes of the heat recovery steam generator leading to operational problems. As this the case, SCR has been judged to be technically infeasible for oil firing in some previous BACT determinations.

The latest information available indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NOx injection ratio. For natural gas firing operation NOx emissions

can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater injection ratio. By lowering the injection ratio for oil firing, testing has indicated that NOx can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases.

Based on this strategy SCR has been both proposed and established as BACT for oil fired combined cycle facilities with NOx emission limits ranging from 11.7 to 25 ppmvd depending on the efficiency of control established.

The Orlando CoGen Limited, L.P. facility has proposed not to utilize fuel oil; therefore, those consequences of SCR attributed to fuel oil firing will not likely occur. However, the small amount of sulfur in natural gas would likely form ammonium salts.

Environmental Impact Analysis

The predominant environmental impacts associated with this proposal are related to the use of SCR for NOx control. The use of SCR results in emissions of ammonia, which may increase with increasing levels of NOx control. In addition, some catalysts may contain substances which are listed as hazardous waste, thereby creating an additional environmental impact. Although the use of SCR does have some positive environmental benefits, the disadvantages may outweigh the benefits which would be provided by reducing nitrogen oxide emissions by 80 percent or greater. The benefit of NOx control by using SCR is substantiated by the fact that nearly one half of all BACT determinations have established SCR as the control measure for nitrogen oxides over the last five years.

From the evaluation of natural gas combustion, toxics are projected to be emitted in very small amounts, with the total combined emissions to be less than 0.1 tons per year. Although the emissions of toxic pollutants could be controlled by particulate control devices such as a baghouse or scrubber system, the amount of emission reductions would not warrent the added expense. Consequently, the Department does not believe that the BACT determination would be affected by the emissions of the toxic polutants associated with the firing of natural gas.

Potentially Sensitive Concerns

With regard to controlling NOx emissions with SCR, the applicant has identified the following technical limitations:

1. SCR would reduce the output of the combustion turbines by one-half percent.

2. SCR could result in the release of unreacted ammonia to the atmosphere.

3. SCR would require handling of ammonia by plant operators. Since it is a hazardous material, there is a concern about safety and productivity of operators.

4. SCR results in contaminated catalyst from flue gas trace elements which could be considered hazardous. Safety of operators and disposal of spent catalyst is a concern.

The combustion turbines proposed for the project (ABB 11N-EV) is a heavy-frame that is highly efficient and uses advanced dry low-NOx combustion technology. Information supplied by the applicant indicates that actual emissions will be 15 ppmvd (corrected to 15% O_2) or lower on a continuous basis.

BACT Determination by DER

NOx Control

A review of the permitting activities for combined cycle proposals across the nation indicates that SCR has been required and most recently proposed for installations with a variety of operating conditions (i.e., natural gas, fuel oil, capacity factors ranging from low to high). However, the cost and other concerns expressed by the applicant are valid, and advanced NOx combustion controls have been accepted as BACT on similar projects.

The information that the applicant presented and Department calculations indicates that the incremental cost of controlling NOx ($14,308/ton) is high compared to other BACT determinations which require SCR. Furthermore, actual NOx levels are expected to be less than the 15 ppmvd (corrected to 15% O_2), which would increase the cost of SCR. Based on the information presented by the applicant and the evaluation conducted, the Department believes that the use of SCR for NOx control is not justifiable as BACT. Therefore, the Department will accept dry low-NOx combustors as NOx control when firing natural gas for this project.

The emissions of NOx from the duct burner will be limited to 0.1 lb/MMBtu, which has been the BACT limit established for similar facilities. Duct firing will be used for supplying steam and limited to operate at a full load equivalent of 3,688 hours/year at a maximum heat input of 122.0 x 10^6 Btu/hr for a maximum heat input of 450,000 x 10^6 Btu/yr (note: The unit may operate at lower rates for more hours within the annual heat input limit).

CO Control

Combustion control will be considered as BACT for CO when firing natural gas. The permittee shall design the facility to allow for the future installation of an oxidation catalyst. Once the performance test is completed and if the facility demonstrates compliance with the CO emission limits, then an oxidation catalyst will not be required. Otherwise, the decision to require an oxidation catalyst will be based on a cost/benefit analysis of using such control.

Other Emissions Control

The emission limitations for PM and PM_{10} are based on previous BACT determinations for similar facilities.

The emission limits for the Orlando CoGen Limited, L.P. project are thereby established as follows:

	Emission Standards/Limitations	
Pollutant	CT (Natural Gas Firing)	DB (Natural Gas Firing)
NOx	15 ppmvd @ 15% O2	0.1 lb/MMBtu
CO	10 ppmvd	0.1 lb/MMBtu
PM & PM10	0.01 lb/MMBtu	0.01 lb/MMBtu

Note: Natural gas will be used only for supplemental firing the DB for a full load equivalent of 3688 hrs/yr at 122.0 x 10^6 Btu/hr maximum heat input for a maximum heat input of 450,000 x 10^6 Btu/yr (note: The unit may operate at lower rates for more hours within the annual heat input limit).

Details of the Analysis May be Obtained by Contacting:

Bruce Mitchell, Engineer IV
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

C. H. Fancy, P.E., Chief
Bureau of Air Regulation

August 14 1992
Date

Approved by:

Carol M. Browner, Secretary
Dept. of Environmental Regulation

August 17 1992
Date

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 RADIATI

MEMORANDUM

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

FROM: John B. Rasnic, Chief
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 anaylsis 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.

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

Department of Environmental Protection

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

Lawton Chiles
Governor

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

LTK/jtt

copies furnished to:

Dennis Nester

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

LTK/jtt

copies furnished to:

Dennis Nester

Appendix 4 – DARM-EM-05

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 suing emission testing at four loads as required in Subpart GG.

HLR/chf/h

Attachment

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

 OCL [92-96]

Department of Environmental Protection

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

Lawton Chiles
Governor

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
<u>Change of Permit Conditions</u>

Dear Mr. Jones:

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

<u>Condition</u>

Specific Condition No. 15

<u>From</u>

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

<u>To</u>

..the Orange County Environmental Protection Department..

<u>Condition</u>

Specific Condition No. 16

<u>From</u>

..the Department's Central District office..

<u>To</u>

..the Orange County Environmental Protection Department..

<u>Condition</u>

Specific Condition No. 20 - <u>Delete</u>

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

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

5/31 - John Turner T/C

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

cc: TODD SCOPPA
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.

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

Appendix 7 – Operating permit of 2/10/95

Department of Environmental Protection

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

Lawton Chiles
Governor

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.

GE L 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 [1]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.

DEP Form 62-1.201(5)
Effective November 30, 1982

[1] pter 62-30 was transferred to Chapter 62-730.

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

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 - 856.9MMBtu/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 or 17 - Determination of Particulate Emissions from 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

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.

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 O_2 concentrations or highest CO_2 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 lb/hr x 20 hrs) + (69.6 lb/hr x 4 hrs)]/24 hrs =

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

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:

$$NO_x = (NO_{x\ obs})(P_{ref}/P_{obs})^{0.5}\ e^{19(H_{obs} - 0.00633)(288^{o}K/T_{amb})^{1.53}}$$

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

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 be 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

fossil fuel steam generator > 250 MMBtu VE < 20%

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 Cullum
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

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