Orange Cogeneration Limited Partnership
Permit Number AC53-233851

Insert B to
Specific Condition 16

Testing of emissions shall be conducted at 95-100% of the manufacturer's rated heat input based on the average ambient air temperature during the test. Compliance for NO_x emission limits shall be determined using the turbine manufacturer's thermal throughput rating for the average ambient temperature by multiplying the permitted emission limit at ISO conditions (59 °F) by the ratio of the tested heat input to the maximum heat input (MMBtu/hr) at ISO conditions.

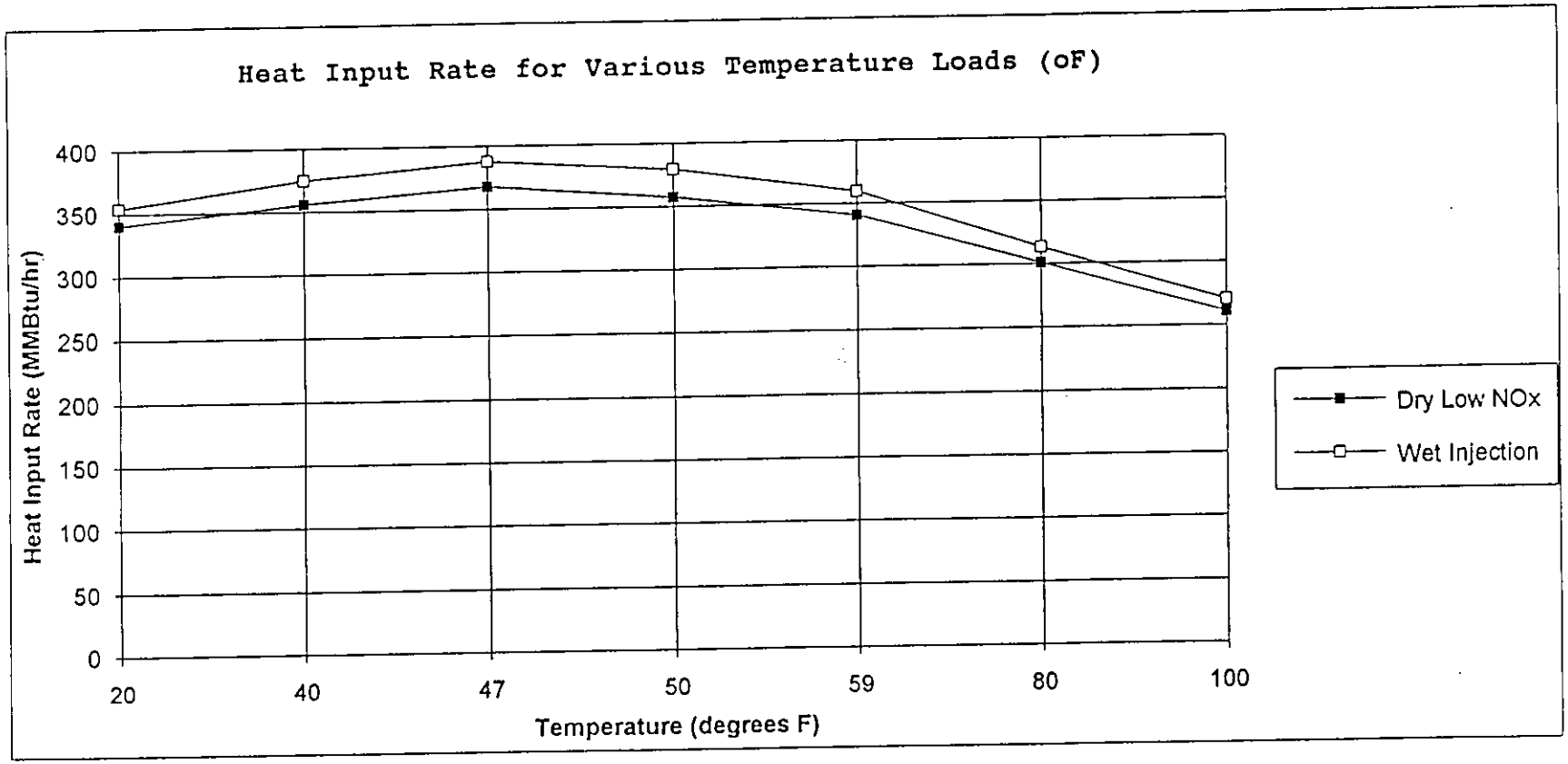
Davis G (Jeff) Reese
Manager, Legal & Public Affairs

Michael L. Wilkinson, P.E.
Project Engineer

Central and South West Services, Inc.
1616 Woodall Rodgers Freeway
P.O. Box 660164
Dallas, Texas 75266-0164
(214) 777-3717
FAX (214) 777-1336

23046 Avenida de la Carlota
Suite 400
Laguna Hills, California 92653
Telephone (714) 588-3767
Facsimile (714) 588-3972

ARK ENERGY INC.



ORANGECO.XLS Chart 1
10/27/93

ORANGE COGENERATION LIMITED PARTNERSHIP
AC53-233851 (PSD-FL-206)
42 MW COMBINED CYCLE GAS TURBINE

Table 1/2 - Allowable Emission Rates for each Combustion Turbine

Pollutant[a]	Control[e]	Basis	Allowable Emissions Standards/Limitations ISO Conditions[b] lb/hr	TPY	Maximum Corrected[c] lb/hr	TPY	Basis for Limit
NO_x	~~WI~~	~~25 ppmvd[d] at 15% O_2/ISO~~	~~36.3~~	~~159.1~~	~~38.5~~	~~168.6~~	~~BACT~~
	DLN	25 ppmvd at 15% O_2/ISO at full load	34.8	152.3	37.0	161.9	BACT
CO	~~WI~~	~~30 ppmvd~~	~~26.8~~	~~117.5~~	~~27.8~~	~~122.0~~	~~BACT~~
	DLN	30 ppmvd	27	118.2	27.8	~~127.0~~ 121.8	BACT
PM/PM_{10}	~~WI~~	~~0.0139 lb/MMBtu~~	~~5~~	~~21.9~~	~~5~~	~~21.9~~	~~BACT~~
	DLN	~~0.0147 lb/MMBtu~~ 5 lb/hr	5	21.9	5	21.9	BACT
VOC	~~WI~~	~~10 ppmvd~~	~~3.83~~	~~16.8~~	~~3.98~~	~~17.4~~	~~BACT~~
	DLN	10 ppmvd	3.86	16.9	3.98	17.4	BACT

[a] Pollutant emissions are based on 8,760 hours per year operation firing natural gas or equivalent biogas at 59° F.

[b] Emissions rates are based on 100% load and at ISO conditions. Pollutant emission rates may vary depending on the air inlet temperature to the combustion turbine (CT) and CT characteristics. Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review ~~90 days after selection of the CT~~ by January 1, 1995. Subject to approval by the Department, the manufacturer's curve may be used to establish pollutant emission rates over a range of temperature for the purpose of compliance determination.

[c] Maximum emission rates not to be exceeded ~~after correction for air inlet temperature to the combustion turbine~~.

[d] The NO_x maximum concentration will be lowered to 15 ppmvd at 15% O_2 at ISO conditions by 1/1/98 using appropriate combustion technology improvements. Should this level of control not be achieved when the initial compliance demonstration stack tests are performed, the permittee must provide the Department with a ~~compliance~~ plan ~~that will ensure compliance within a time period approved by the Department~~. NO_x emission concentrations are to be corrected to ISO conditions to demonstrate compliance with the NO_x emissions standard. and schedule to meet this standard.

[e] ~~Wet injection (WI) and~~ Dry Low-NO_x (DLN) combustors.

Revision 1
Table 2-4. Stack, Operating, and Emission Data for the Proposed Combustion Turbine with Dry Low NO_x Combustion Technology--Combined Cycle Operation

Parameter	Operating and Emission Data[a] for Ambient Temperatures (°F) at					
	20°F	40°F	47°F	59°F	80°F	100°F
Stack Data (ft)						
Height	100	100	100	100	100	100
Diameter	8.5	8.5	11.0	8.5	8.5	8.5
Operating Data						
Temperature (°F)	215	215	230	215	215	215
Velocity (ft/sec)	86.9	86.6	52.4	82.9	75.4	67.6
Maximum Hourly Emission Data (lb/hr) Per Unit[b]						
SO_2	1.03	1.08	1.11	1.03	0.91	0.79
PM	5.0	5.0	5.0	5.0	5.0	5.0
NO_x[c]	34.7	36.3	37.0	34.8	30.7	26.6
CO	28.6	28.4	27.8	27.0	24.3	21.5
VOC	4.09	4.05	3.98	3.86	3.47	3.06
Sulfuric Acid Mist	0.079	0.082	0.085	0.079	0.070	0.060
Annual Potential Emission Data (TPY) Per Unit[b]						
SO_2	NA	NA	4.87	4.51	NA	NA
PM	NA	NA	21.9	21.9	NA	NA
NO_x[c]	NA	NA	161.9	152.3	NA	NA
CO	NA	NA	121.9	118.2	NA	NA
VOC	NA	NA	17.4	16.9	NA	NA
Sulfuric Acid Mist	NA	NA	0.37	0.35	NA	NA

[a] Refer to Appendix A for detailed information. Annual emission data are based on the turbine firing natural gas for 8,760 hours. Tables A-9 through A-12 provide information on combined cycle operation with dry low NO_x.

[b] Other regulated pollutants are assumed to have negligible emissions. These pollutants include lead, reduced sulfur compounds, hydrogen sulfide, fluorides, beryllium, mercury, arsenic, asbestos, vinyl chloride, and radionuclides.

[c] Based on 25 ppm, corrected to 15 percent O_2 and dry conditions by volume.

Revision 1
Table 2-4. Stack, Operating, and Emission Data for the Proposed Combustion Turbine with Dry Low NO_x Combustion Technology--Combined Cycle Operation

Parameter	Operating and Emission Data[a] for Ambient Temperatures (°F) at 20°F	40°F	47°F	59°F	80°F	100°F
Stack Data (ft)						
Height	100	100	100	100	100	100
Diameter	8.5	8.5	11.0	8.5	8.5	8.5
Operating Data						
Temperature (°F)	215	215	230	215	215	215
Velocity (ft/sec)	86.9	86.6	52.4	82.9	75.4	67.6
Maximum Hourly Emission Data (lb/hr) Per Unit[b]						
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SO_2	NA	NA	4.87	4.51	NA	NA
PM	NA	NA	21.9	21.9	NA	NA
NO_x[c]	NA	NA	161.9	152.3	NA	NA
CO	NA	NA	121.9	118.2	NA	NA
VOC	NA	NA	17.4	16.9	NA	NA
Sulfuric Acid Mist	NA	NA	0.37	0.35	NA	NA

[a] Refer to Appendix A for detailed information. Annual emission data are based on the turbine firing natural gas for 8,760 hours. Tables A-9 through A-12 provide information on combined cycle operation with dry low NO_x.

[b] Other regulated pollutants are assumed to have negligible emissions. These pollutants include lead, reduced sulfur compounds, hydrogen sulfide, fluorides, beryllium, mercury, arsenic, asbestos, vinyl chloride, and radionuclides.

[c] Based on 25 ppm, corrected to 15 percent O_2 and dry conditions by volume.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

OCT 2 8 1997

RECEIVED
NOV 03 1997
BUREAU OF
AIR REGULATION

4APT-ARB

Mr. Joseph Kahn. P.E.
Permit Engineer
Title V Section
Air Resources Management Division
Florida Department of Environmental
Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

SUBJECT: Custom Fuel Monitoring Schedule Proposed for Stationary Gas Turbines at Orange Cogeneration

Dear Mr. Kahn:

This letter is in response to your September 3, 1997, request for a determination regarding a custom fuel monitoring schedule proposed for combustion turbines at the referenced cogeneration plant. The natural gas fired turbines at this plant are subject to 40 C.F.R. Part 60, Subpart GG (Standards of Performance for Stationary Gas Turbines), and Region 4 has concluded that the proposed custom fuel monitoring schedule is acceptable because it is consistent with guidance that the U.S. Environmental Protection Agency (EPA) previously issued regarding such schedules.

According to 40 C.F.R. §60.334(b)(2), owners and operators of stationary gas turbines subject to Subpart GG are required to monitor fuel nitrogen and sulfur content on a daily basis if a company does not have intermediate bulk storage for its fuel. 40 C.F.R. §60.334(b)(2) also contains provisions allowing owners and operators of turbines that do not have intermediate bulk storage for their fuel to request approval of custom fuel monitoring schedules that require less frequent monitoring of fuel nitrogen and sulfur content. In a memorandum dated August 14, 1987, the EPA Compliance Monitoring Branch provided guidance regarding acceptable custom fuel monitoring provisions for natural gas fired turbines, and this memorandum also gave EPA regional offices the authority to approve custom fuel monitoring schedules for Subpart GG turbines.

Under the EPA guidance issued in 1987, the requirement to monitor the nitrogen content of pipeline quality natural gas was waived entirely since the Agency determined that this type of

fuel does not contain any fuel-bound nitrogen that can cause NO_x emissions. As an alternative to daily sulfur monitoring, the 1987 policy describes a three stage process under which owners and operators of natural gas fired turbines can obtain approval to conduct sampling on a semiannual basis. In the first step of this process, the sulfur content of the fuel must be monitored twice a month for at least six months. If the results of this bimonthly monitoring verify compliance with the applicable sulfur limit and indicate little variability in the sulfur content of the fuel, the fuel sampling and analysis frequency can be reduced from a bimonthly to a quarterly basis. If six quarters of fuel monitoring data verify compliance with the applicable sulfur standard and indicate little variability in the sulfur content of the fuel, the sampling and analysis frequency can be reduced to a semiannual basis. Since the custom fuel monitoring approach proposed by Orange Cogeneration for the natural gas fired turbines at its Polk County plant is identical to that outlined in the 1987 custom fuel monitoring guidance issued by EPA, Region 4 has no objections to approval of the proposed alternative schedule.

If you have any questions about the determination provided in this letter, please contact Mr. David McNeal of my staff at 404/562-9102.

Sincerely yours,

R. Douglas Neeley
Chief
Air and Radiation Technology
Branch
Air, Pesticides and Toxics
Management Division

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
100 ALABAMA STREET, S.W.
ATLANTA, GEORGIA 30303-3104

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ATL GA 303 10-01-10/30/97 #7

Mr. Joseph Kahn, P.E.
Title V Section
Air Research Management Division
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

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file copy

Department of Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

June 18, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Allan Wade Smith
General Manager
Orange Cogeneration L.P., Inc.
1125 US Hwy 98 South, Suite 100
Lakeland, Florida 33801

Re: DRAFT Permit Modification No. 1050231-002-AC, PSD-FL-206B
Bartow Facility / Combined Cycle Combustion Turbine
Extension of Nitrogen Oxides Emissions Compliance Date

Dear Mr. Smith:

Enclosed is one copy of the Draft Air Construction Permit Modification for the combined cycle combustion turbine located in Bartow, Polk County. The Department's Intent to Issue Air Construction Permit Modification and the "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION" are also included.

The "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION" must be published within 30 (thirty) days of receipt of this letter. Proof of publication, i.e., newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit modification.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A. A. Linero, P.E., Administrator, New Source Review Section at the above letterhead address. If you have any other questions, please contact Mr. Marty Costello or Mr. Linero at 904/488-1344.

Sincerely,

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

CHF/mc

Enclosures

In the Matter of an
Application for Permit Modification by:

Orange Cogeneration L.P., Inc.
1125 US Hwy 98 South, Suite 100
Lakeland, Florida 33801

DRAFT Permit Amendment No.:1050231-002-AC
PSD-FL-206B
Bartow Facility
Polk County

INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification (copy of DRAFT Permit modification attached) for the proposed project, as detailed in the application specified above, for the reasons stated below.

The applicant, Orange Cogeneration L.P, Inc. applied on June 10, 1997, to the Department for an air construction permit modification to extend the final nitrogen oxides emissions compliance date for its combined cycle combustion turbine located in Bartow, Polk County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that an air construction permit modification is required to extend the final date until January 1, 1999 to comply with the lower nitrogen oxides emission standard (15 ppm).

The Department intends to issue this air construction permit modification based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION". The notice shall be published one time only within 30 (thirty) days in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 904/488-1344; Fax 904/ 922-6979) within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit modification pursuant to Rule 62-103.150 (6), F.A.C.

The Department will issue the FINAL Permit Modification, in accordance with the conditions of the enclosed DRAFT Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed DRAFT Permit Modification issuance action for a period of 30 (thirty) days from the date of publication of "PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION." Written comments should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Modification, the Department shall issue a Revised DRAFT Permit Modification and require, if applicable, another Public Notice.

The Department will issue the permit modification with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S., or a party requests mediation as an alternative remedy under Section 120.573 F.S. before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 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, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9730, fax: 904/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition (or a request for mediation, as discussed below) within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207 of the Florida Administrative Code.

A petition must contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the 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 the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take with respect to the action or proposed action addressed in this notice of intent.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A person whose substantial interests are affected by the Department's proposed permitting decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

A request for mediation must contain the following information: (a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any; (b) A statement of the preliminary agency action; (c) A statement of the relief sought; and (d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed, and incorporating it by reference.

The agreement to mediate must include the following: (a) The names, addresses, and telephone numbers of any persons who may attend the mediation; (b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time; (c) The agreed allocation of the costs and fees associated with the mediation; (d) The agreement of the parties on the confidentiality of discussions and

documents introduced during mediation; (e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen; (f) The name of each party's representative who shall have authority to settle or recommend settlement; and (g) The signatures of all parties or their authorized representatives.

As provided in Section 120.573 F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57 F.S. for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57 F.S. remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes.

In addition to the above, a person subject to regulation has a right to apply for a variance from or waiver of the requirements of particular rules, on certain conditions, under Section 120.542 F.S. The relief provided by this state statute applies only to state rules, not statutes, and not to any federal regulatory requirements. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have in relation to the action proposed in this notice of intent.

The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number of the petitioner; (b) The name, address, and telephone number of the attorney or qualified representative of the petitioner, if any; (c) Each rule or portion of a rule from which a variance or waiver is requested; (d) The citation to the statute underlying (implemented by) the rule identified in (c) above; (e) The type of action requested; (f) The specific facts that would justify a variance or waiver for the petitioner; (g) The reason why the variance or waiver would serve the purposes of the underlying statute (implemented by the rule); and (h) A statement whether the variance or waiver is permanent or temporary and, if temporary, a statement of the dates showing the duration of the variance or waiver requested.

The Department will grant a variance or waiver when the petition demonstrates both that the application of the rule would create a substantial hardship or violate principles of fairness, as each of those terms is defined in Section 120.542(2) F.S., and that the purpose of the underlying statute will be or has been achieved by other means by the petitioner.

Persons subject to regulation pursuant to any federally delegated or approved air program should be aware that Florida is specifically not authorized to issue variances or waivers from any requirements of any such federally delegated or approved program. The requirements of the program remain fully enforceable by the Administrator of the EPA and by any person under the Clean Air Act unless and until the Administrator separately approves any variance or waiver in accordance with the procedures of the federal program.

Executed in Tallahassee, Florida.

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION (including the PUBLIC NOTICE, and DRAFT permit modification) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 6/23/97 to the person(s) listed:

Mr. Allan Wade Smith, Orange Cogeneration L.P., Inc. *
Mr. Brain Beals, EPA
Mr. Bill Thomas, SWD

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Charlotte J. Hayes (Clerk) 6/23/97 (Date)

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT MODIFICATION

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit Modification No.: 1050231-002-AC, PSD-FL-206B
Bartow Facility
Polk County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Orange Cogeneration L.P., Inc., for their facility located in Bartow, Polk County. A Best Available Control Technology (BACT) determination was not required for this modification pursuant to Rule 62-212.400, F.A.C. and 40 CFR 52.21, Prevention of Significant Deterioration (PSD). The applicant's name and address are: Orange Cogeneration GP, Inc. 1125 US Hwy 98 South, Suite 100, Lakeland, Florida 33801.

The applicant has requested a one year extension on the date to comply with a lower emission limit (15 ppm) for nitrogen oxides (NO_X) for the combined cycle combustion turbine which is primarily fired by pipeline quality natural gas. This extension is needed to allow time for the vendor to complete development of the dry low NO_X control system. The emission limit will be 25 ppm until the proposed new deadline of January 1, 1999. This amendment also clarifies which fuels are to be fired during annual emission tests.

An air quality impact analysis was not conducted. Emissions from the facility will not consume PSD increment and will not significantly contribute to or cause a violation of any state or federal ambient air quality standards.

The Department will issue the FINAL Permit Modification, in accordance with the conditions of the DRAFT Permit Modification unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed DRAFT Permit Modification issuance action for a period of 30 (thirty) days from the date of publication of this Notice. Written comments should be provided to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Modification, the Department shall issue a Revised DRAFT Permit Modification and require, if applicable, another Public Notice.

The Department will issue FINAL Permit Modification with the conditions of the DRAFT Permit Modification unless a timely petition for an administrative hearing is filed pursuant to Sections 120.569 and 120.57 F.S. or a party requests mediation as an alternative remedy under Section 120.573 before the deadline for filing a petition. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning for a hearing are set forth below, followed by the procedures for requesting mediation.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57 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, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, telephone: 904/488-9370, fax: 904/487-4938. Petitions must be filed within fourteen days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. A petitioner must mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition (or a request for mediation, as discussed below) within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-5.207 of the Florida Administrative Code.

A petition must contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the 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 the facts that the petitioner contends warrant reversal or modification of the Department's action or proposed action; (f) A statement identifying the rules or statutes that the petitioner contends require

NOTICE TO BE PUBLISHED IN THE NEWSPAPER

reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take with respect to the Department's action or proposed action addressed in this notice of intent.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice of intent. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A person whose substantial interests are affected by the Department's proposed permitting decision, may elect to pursue mediation by asking all parties to the proceeding to agree to such mediation and by filing with the Department a request for mediation and the written agreement of all such parties to mediate the dispute. The request and agreement must be filed in (received by) the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000, by the same deadline as set forth above for the filing of a petition.

A request for mediation must contain the following information: (a) The name, address, and telephone number of the person requesting mediation and that person's representative, if any; (b) A statement of the preliminary agency action; (c) A statement of the relief sought; and (d) Either an explanation of how the requester's substantial interests will be affected by the action or proposed action addressed in this notice of intent or a statement clearly identifying the petition for hearing that the requester has already filed, and incorporating it by reference.

The agreement to mediate must include the following: (a) The names, addresses, and telephone numbers of any persons who may attend the mediation; (b) The name, address, and telephone number of the mediator selected by the parties, or a provision for selecting a mediator within a specified time; (c) The agreed allocation of the costs and fees associated with the mediation; (d) The agreement of the parties on the confidentiality of discussions and documents introduced during mediation; (e) The date, time, and place of the first mediation session, or a deadline for holding the first session, if no mediator has yet been chosen; (f) The name of each party's representative who shall have authority to settle or recommend settlement; and (g) The signatures of all parties or their authorized representatives.

As provided in Section 120.573 F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57 F.S. for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons whose substantial interests will be affected by such modified final decision of the Department have a right to petition for a hearing only in accordance with the requirements for such petitions set forth above. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57 F.S. remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action and electing remedies under those two statutes.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection Bureau of Air Regulation 111 S. Magnolia Drive, Suite 4 Tallahassee, Florida, 32301 Telephone: 904/488-1344 Fax: 904/922-6979	Department of Environmental Protection Southwest District Office 3804 Coconut Palm Drive Tampa, FL 33619 Telephone:(813) 744-6100 Fax: :(813) 744-6084

The complete project file includes the Draft Permit Modification, the application, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Resource Review Section at 111 South Magnolia Drive, Suite 4, Tallahassee, Florida 32301, or call 904/488-1344, for additional information.

DRAFT

July xx, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Allan Wade Smith
General Manager
Orange Cogeneration L.P., Inc.
1125 US Hwy 98 South, Suite 100
Lakeland, Florida 33801

Re: Permit Modification No. 1050231-002-AC, PSD-FL-206B
Bartow Facility

Dear Mr. Smith:

The Department has reviewed the modification requested in your June 6, 1997 letter and the permit is hereby modified as follows:

Specific Condition 10

FROM:

Prior to January 1, 1998, the maximum NO_x concentration, 1-hour average, from each CT/HRSG unit, shall not exceed 25 parts per million by volume dry corrected to 15 percent oxygen (25 ppmvd @ 15% O_2), as determined by the procedures in Specific Conditions Nos. 16, 17 and 18.

TO:

Prior to January 1, 1999, the maximum NO_x concentration, 1-hour average, from each CT/HRSG unit, shall not exceed 25 parts per million by volume dry corrected to 15 percent oxygen (25 ppmvd @ 15% O_2), as determined by the procedures in Specific Conditions Nos. 16, 17 and 18.

Specific Condition 11

FROM:

After December 31, 1997, the maximum NO_x concentration, 1-hour average, from each CT/HSRG unit, shall not exceed 15 ppmvd @ 15% O_2, as determined by the procedures in Specific Conditions Nos. 16, 17 and 18. Should the NO_x standard of 15 ppmvd @ 15% O_2 not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard. The permittee shall obtain prior approval from the Department for any air pollution control equipment not addressed in this permit that is needed to meet the NO_x emission standard.

DRAFT

TO:

After December 31, 1998, the maximum NO_x concentration, 1-hour average, from each CT/HSRG unit, shall not exceed 15 ppmvd @ 15% O_2, as determined by the procedures in Specific Conditions Nos. 16, 17 and 18. ~~**Should the NO_x standard of 15 ppmvd @ 15% O_2 not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard**~~. The permittee shall obtain prior approval from the Department for any air pollution control equipment not addressed in this permit that is needed to meet the NO_x emission standard.

Specific Condition 15

FROM:

Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review by January 1, 1998. Until new curves are approved by the Department or the combustion turbines meet the NO_x emission standard of 15 ppmvd @ 15% (whichever occurs first), the stack, operator, and emission data for the proposed combustion turbines in Table 2-4 (October 28, 1993) will be used. The data will be used to determine compliance with the maximum allowable emission rates of the regulated air pollutants at different air inlet temperatures for these turbines.

TO:

Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP **for review by January 1, 1999**. Until new curves are approved by the Department or the combustion turbines meet the NO_x emission standard of 15 ppmvd @ 15% (whichever occurs first), the stack, operator, and emission data for the proposed combustion turbines in Table 2-4 (October 28, 1993) will be used. The data will be used to determine compliance with the maximum allowable emission rates of the regulated air pollutants at different air inlet temperatures for these turbines.

Specific Condition 16

FROM:

Testing of emissions shall be conducted at 95-100% of the manufacturer's rated heat input based on the average air inlet temperature for the CT during the test. Compliance for NO_x emission limits shall be determined by calculating the concentration of NO_x (ppmvd at 15% O_2) and using the turbine manufacturer's thermal throughput rating for the average air inlet temperature by multiplying the permitted emission limit by the ratio of the tested heat input to the maximum heat input (MMBtu/hr) at this temperature. Compliance with the visible emissions, NO_x, SO_2, CO, PM/PM_{10}, and VOC emission standards shall be determined annually thereafter. Tests shall be conducted on both natural gas and biogas fuels. If the initial tests or fuel analyses show the emissions of air pollutants from the combustion turbines are independent of the fuel (natural gas or biogas fuel), then annual compliance tests can be conducted while the combustion turbines are burning either fuel.

DRAFT

TO:

Testing of emissions shall be conducted at 95-100% of the manufacturer's rated heat input based on the average air inlet temperature for the CT during the test. Compliance for NO_x emission limits shall be determined by calculating the concentration of NO_x (ppmvd at 15% O_2) and using the turbine manufacturer's thermal throughput rating for the average air inlet temperature by multiplying the permitted emission limit by the ratio of the tested heat input to the maximum heat input (MMBtu/hr) at this temperature. Compliance with the visible emissions, NO_x, SO_2, CO, PM/PM_{10}, and VOC emission standards shall be determined annually thereafter. Tests shall be conducted on both natural gas and biogas fuels, **provided biogas gas fuels become available**. If the initial tests or fuel analyses show the emissions of air pollutants from the combustion turbines are independent of the fuel (natural gas or biogas fuel), then annual compliance tests can be conducted while the combustion turbines are burning either fuel.

Specific Condition 19

FROM:

Prior to January 1, 1998, the permittee shall provide a report showing how the allowable NO_x emissions of 15 ppmvd @ 15% O_2 is achieved by the CT's.

TO:

The permittee shall provide quarterly reports regarding the progress toward attaining the allowable NO_x emissions of 15 ppmvd @ 15% O_2 until such emission level is attained.

Table 1

The compliance date is hereby changed to **1/1/99** as is the date in Note (d).

A copy of this letter shall be filed with the referenced permit and shall become part of the permit.

Sincerely,

Howard L. Rhodes, Director
Division of Air Resources
Management

HLR/mc

Enclosures

Florida Department of
Environmental Protection

Memorandum

TO: Clair Fancy

THRU: Al Linero 6/18

FROM Marty Costello MC

DATE: June 18, 1997

SUBJECT: Orange Cogeneration GP Inc.
PSD-FL-206B
Extension of Compliance Date for 15 ppm NO_X Limit

Attached is a letter modifying a construction permit for the Orange Cogen combined cycle combustion turbine to allow an additional year for their General Electric LM6000 with dry low NO_X technology to maintain a consistent level of NO_X at 15 ppmvd @ 15% O_2. This action is consistent with those taken for KUA, Auburndale Power Partners, and DESTEC/Tiger Bay.

In addition, they also request clarification of Specific Condition 16 that tests shall be conducted on both natural gas and biogas fuels, provided biogas fuels become available.

I recommend your approval and signature.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF REVISED PERMITS

In the matter of an
Application for Revised Permits by:

DEP File Nos. AC 53-233852A
AC 53-233851B
PSD-FL-206A&B
Polk County

Mr. William R. Malenius
Director of Project Development
Orange Cogeneration Limited Partnership
23046 Avendia De La Carlota
Laguna Hills, CA 92653

Enclosed are revised permits, Nos. AC 53-233852A & AC 53-233851B and PSD-FL-206B, and the revised Best Available Control Technology (BACT) determination for two gas combustion turbines and one auxiliary boiler to be located in Bartow, Polk County, Florida. These revised permits and BACT determination change the nitrogen oxides emission standard concentration from 15 parts per million by volume dry corrected to 15 percent oxygen and ISO ambient standard conditions (15 ppmvd @ 15% O_2 @ ISO) to the observed concentration of 15 ppmvd @ 15% O_2. These revised permits and BACT determination are issued pursuant to Section 403, Florida Statutes.

Any party to this Order (revised permits) has the right to seek judicial review of the revised permits pursuant to Section 120.68, Florida Statutes, by 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 14 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF REVISED PERMITS and all copies were mailed by certified mail before the close of business on 3-7-95 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.

Clerk 3-7-95
Date

Copies furnished to:

B. Thomas, SWD
J. Harper, EPA
J. Bunyak, NPS
L. Novak, PCESD
K. Kosky, P.E., KBN
T. Donovan, OCLP

Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Suite 400
Laguna Hills, CA 92653

Permit Number: AC53-233851B
PSD-FL-206B
Expiration Date: April 1, 1998
County: Polk
Latitude/Longitude: 27°52'15"N
81°49'31"W
Project: Two Combustion Turbines

This revised permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). 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 and specifically described as follows:

Installation of two natural gas/biogas fired GE LM 6000 (or equivalent) combustion turbines (CT), two heat recovery steam generators and one steam turbine. An auxiliary boiler (AC53-233852) is being permitted separately. The CTs will be equipped with **a staged combustion technology** dry low-NO_X system to control nitrogen oxides (NO_X) emissions. Each CT will be equipped with a 100 ft. high, 11 ft. diameter stack that will handle approximately 300,000 actual cubic feet per minute of flue gas at 230°F. The cogeneration facility will be located on Clear Springs Road, Bartow, Polk County, Florida.

The UTM coordinates of this facility are Zone 17, 418.75 km East and 3083.0 km North.

The emissions unit(s)/sources 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. Application received July 1, 1993.
2. Department's July 22, 1993 letter.
3. KBN's August 5, 1993 letter.
4. KBN's August 29, 1993 letter.
5. Tables 1 and 2, Allowable Emission Rates.
6. KBN's October 28, 1993 letter.
7. KBN's October 29, 1993 letter.
8. Department's February 18, 1994 letter.
9. KBN's March 11, 1994 letter.
10. Department's March 29, 1994 letter.
11. KBN's June 22, 1994 letter.
12. KBN's October 10, 1994 letter.

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 F.S. 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 F.S. 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.

10. The permittee agrees to comply with changes in Department rules and F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

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:

This permit replaces permit No. AC53-233851/PSD-FL-206 and amended construction permit No. AC53-233851A/PSD-FL-206A.

Construction Requirements

1. Dry low-NO_X **combustion technology** systems shall be installed and operated on each combustion turbine (CT).

2. A system to continuously monitor the fuel consumption, nitrogen oxides emissions, and oxygen content of the flue gas shall be installed on each CT.

3. The heat recovery steam generator (HRSG) installed on each CT shall not be equipped with an auxiliary/duct burner.

4. Each CT stack shall be equipped with stack sampling facilities (sample ports, work platforms, access, and electrical power) that meet the specifications given in Rule 62-297.345, F.A.C.

Operation Limitations

5. The CTs shall comply with all requirements of 40 CFR 60, Subpart GG (July, 1993), Standard of Performance for Stationary Gas Turbines, which is adopted by reference in Rule 62-296.800(2)(a), F.A.C.

6. The facility is allowed to operate continuously, 8760 hours per year.

7. Only natural gas/biogas fuel shall be used for fuel at this facility.

8. Each CT shall have a maximum heat input of 368.3 MMBtu/hr, when using dry low NO_X technology to control NO_X emissions.

9. The operation of this facility shall not create a nuisance or discharge air pollutants that cause or contribute to objectionable odors **pursuant to Rule 62-296.320(2), F.A.C.**

ORANGE COGENERATION LIMITED PARTNERSHIP
AC53-233851B (PSD-FL-206B)
42 MW COMBINED CYCLE GAS TURBINES

Table 1 - Allowable Emission Rates[b] for each Combustion Turbine

Pollutant[a]	Control[e]	Allowable Emissions Standards/Limitations: Concentration	Compl. Date	Maximum Corrected[c] lbs/hr	TPY	Basis for Limit
NO_x	DLN	25 ppmvd at 15% O_2[d]	initial	37.0	161.9	BACT
	DLN	15 ppmvd at 15% O_2[d]	1/1/98	22.1	97.0	BACT
CO	GC[f]	30 ppmvd		27.8	127.0	BACT
PM/PM_{10}	GC[f]			5	21.9	BACT
VOC	GC[f]	10 ppmvd		3.98	17.4	BACT

[a] Pollutant emissions are based on 8,760 hours per year operation firing natural gas or biogas.

[b] Allowable emissions, lbs/hr, at different inlet temperatures shall not exceed the rates given in the manufacturer's data required by specific condition No. 15.

[c] Maximum emission rates not to be exceeded.

[d] The NO_x maximum concentration will be lowered to 15 ppmvd at 15% O_2 by 1/1/98 using appropriate combustion technology improvements. Should this level of control not be achieved when the initial compliance demonstration stack tests are performed, the permittee must provide the Department with a plan and schedule to meet this standard. NO_x emission concentrations are to be corrected to 15 percent oxygen to demonstrate compliance with the NO_x emissions standard.

[e] Dry Low-NO_x (DLN) combustors.

[f] Good Combustion.

SPECIFIC CONDITIONS:

Emission Limitation

10. Prior to January 1, 1998, the maximum NO_x concentration, 1-hour average, from each CT/HRSG unit, shall not exceed 25 parts per million by volume dry corrected to 15 percent oxygen (25 ppmvd @ 15% O_2), as determined by the procedures in Specific Conditions Nos. 16, 17 and 18.

11. After December 31, 1997, the maximum NO_x concentration, 1-hour average, from each CT/HRSG unit, shall not exceed 15 ppmvd @ 15% O_2, as determined by the procedures in Specific Conditions Nos. 16, 17 and 18. Should the NO_x standard of 15 ppmvd @ 15% O_2 not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard. The permittee shall obtain prior approval from the Department for any air pollution control equipment not addressed in this permit that is needed to meet the NO_x emission standard.

12. The maximum emission rates for particulate matter (PM/PM_{10}), volatile organic compounds (VOC), NO_x, and carbon monoxide (CO) shall not exceed any of the rates listed in Table 1, Allowable Emission Rates.

13. Visible emissions shall not exceed 10 percent opacity, 6 minute average.

14. The emission rates for sulfur dioxide (SO_2) and sulfuric acid (H_2SO_4) mist, listed in the following table, shall be used for inventory purposes only.

Maximum Emission Rates for Each Combustion Turbine
For Inventory and PSD Tracking Purposes Only

Pollutant	Combustion Turbine Dry Low NO_x Combustion	
	lb/hr	TPY
SO_2	1.11	4.87
H_2SO_4 mist	0.085	0.37

15. Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review **by January 1, 1998.** Until new curves are approved by the Department or the combustion turbines meet the NO_x emission standard of 15 ppmvd @ 15% (whichever occurs first), the stack, operator, and emission data for the proposed combustion turbines in

SPECIFIC CONDITIONS:

Table 2-4 (October 28, 1993) will be used. The data will be used to determine compliance with the maximum allowable emission rates of the regulated air pollutants at different air inlet temperatures for these turbines.

Compliance Determination

16. Testing of emissions shall be conducted at 95-100% of the manufacturer's rated heat input based on the average air inlet temperature for the CT during the test. Compliance for NO_x emission limits shall be determined by calculating the concentration of NO_x (ppmvd at 15% O_2) and using the turbine manufacturer's thermal throughput rating for the average air inlet temperature by multiplying the permitted emission limit by the ratio of the tested heat input to the maximum heat input (MMBtu/hr) at this temperature. Compliance with the visible emissions, NO_x, SO_2, CO, PM/PM_{10}, and VOC emission standards shall be determined within 60 days of achieving maximum production but not later than 180 days after initial firing of each CT (40 CFR 60.8). Compliance with the visible emissions limitation and the NO_x and SO_2 emission standards shall be determined annually thereafter. Tests shall be conducted on both natural gas and biogas fuels. If the initial tests or fuel analyses show the emissions of air pollutants from the combustion turbines are independent of the fuel (natural gas or biogas fuel), then annual compliance tests can be conducted while the combustion turbines are burning either fuel.

17. Compliance shall be determined by the following test methods listed in 40 CFR 60, Appendix A (July, 1993).

Pollutant	EPA Method
PM/PM_{10}*	5 or 17**
NO_x	20
CO	10
VOC	18 or 25A
Visible Emissions	9

NOTE: No other test methods may be used for compliance testing unless prior Department written approval has been received.
* Assumption is that all PM is PM_{10}.
** Stack flue gas temperature must be less than 320°F to use Method 17.

SPECIFIC CONDITIONS:

Monitoring

18. **NO_x and oxygen monitoring to meet the requirements of 40 CFR 60, Subpart GG, shall be accomplished using a continuous emission monitoring (CEM) system. The CEM system shall meet the requirements of 40 CFR 60, Appendix B. The requirements of 40 CFR 75, Appendices A and B, can be substituted for those of 40 CFR 60 provided the minimum criteria of 40 CFR 60 are met. NO_x monitoring to indicate compliance with the BACT limit shall be based on one hour average emissions determined on ppmvd @ 15% O_2.**

Administrative Requirement

19. Prior to January 1, 1998, the permittee shall provide a report showing how the allowable NO_x emissions of 15 ppmvd @ 15% O_2 is achieved by the CTs.

20. The permittee shall provide the Southwest District office with the following notifications required by 40 CFR 60.7:

- When construction commenced within 30 days of commencement of construction
- Anticipated date of initial starting 30 to 60 days prior to startup
- Actual date of startup up within 15 days after the starting
- Notification of the date of the compliance tests not less than 30 days prior to the test

21. Pursuant to Rule 62-210.370(2), F.A.C., Air Operating **Reports**, 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: sulfur content and the lower heating value of the fuel being fired, fuel usage, hours of operation, and air emissions. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

22. 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 (Rule 62-4.090, F.A.C.).

23. An application for an operation permit must be submitted to the **Department's** Southwest 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 (Rules 62-4.055 and 62-4.220, F.A.C.).

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Virginia B. Wetherell, Secretary

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Suite 400
Laguna Hills, CA 92653

Permit Number: AC53-233852A
PSD-FL-206B
Expiration Date: April 1, 1996
Latitude/Longitude: 27°52'15"N
81°49'31"W
Project: Auxiliary Boiler
County: Polk

This revised permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). 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 and specifically described as follows:

Installation of a 100 million British thermal unit per hour (MMBtu/hr) natural gas/equivalent biogas fired tube boiler equipped with a 65 foot high, 3.67 foot diameter stack designed to produce approximately 83,000 pounds per hour of saturated steam at 205 pounds per square inch gauge (psig) pressure. The heat input is based on the High Heating Value (HHV) of the fuel. The auxiliary boiler will be located on Clear Springs Road, Bartow, Polk County, Florida 33830.

The UTM coordinates of this facility are Zone 17, 418.75 kmE and 3083.0 kmN.

The emission unit/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. Application received July 1, 1993.
2. Department's July 22, 1993 letter.
3. KBN's August 5, 1993 letter.

PERMITTEE:
Orange Cogeneration Limited Partnership

Permit Number: AC53-233852A
Expiration Date: April 1, 1996

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 F.S. 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 F.S. 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 F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, 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)
(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:

Construction Requirements

1. The auxiliary boiler shall be equipped with low-NO_x burners.

2. The boiler stack shall be equipped with stack sampling facilities (sample ports, work platforms, access, electrical power) that meet the specifications given in Rule 62-297.345, F.A.C.

Operation Limitations

3. The auxiliary boiler shall comply with all applicable requirements of 40 CFR 60, Subpart Dc.

4. The boiler is allowed to operate continuously, 8760 hours per year.

5. Only natural gas/equivalent biogas fuel shall be burned in this boiler.

6. The maximum heat input to the boiler, **which is** based on the high heating value (HHV) of the fuel, shall not exceed 100 MMBtu/hr.

7. The maximum allowable sulfur content (total) of the natural gas/biogas burned in the boiler shall not exceed 1 grain per 100 cubic feet (1 gr/100 CF) of gas.

SPECIFIC CONDITIONS:

8. The operation of this boiler shall not emit air pollutants that cause or contribute to objectionable odors.

9. Visible emissions shall not exceed 15 percent opacity.

10. Emissions from the boiler shall not exceed any of the following limits:

Pollutant	lb/MMBtu	lbs/hr	TPY
NO_X	0.13	13.0	56.9
CO	0.10	10.0	43.8
VOC	0.04	4.3	18.8

11. Sulfur dioxide ~~(SO_2)~~ emissions from the boiler shall not exceed 0.003 lb/MMBtu, 0.30 lb/hr, and 1.3 TPY. An analysis of the fuel showing the sulfur content does not exceed 1 grain of total sulfur per 100 cubic feet of gas will be accepted as proof of compliance with the sulfur dioxide emission limit. Total sulfur content of the gas shall be determined by test method ASTM D 1072-80 (40 CFR 60.17 (July, 1993)).

12. Particulate matter ~~(PM/PM_{10})~~ emissions from the boiler shall not exceed 0.01 lb/MMBtu, 1.0 lb/hr, and 4.4 TPY. No PM/PM_{10} stack test is required if the visible emissions **limitation is** less than 15 percent opacity.

Testing Requirements

13. Testing of emissions shall be conducted with the source operating at **permitted** capacity. Capacity is defined as 90-100% of **the maximum operating rate allowed by the permit.** If it is impracticable to test at **permitted** capacity, then sources may be tested at less than **90% of the maximum operating rate allowed by the permit.** In this case, subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department. Compliance with the visible emissions **limitation and the** NO_X, CO, and VOC emission standards shall be determined within 60 days of achieving maximum production, but not later than 180 days after initial firing of the boiler. Compliance with the visible emissions **limitation** and **the** NO_X **emission** standards shall be determined annually thereafter.

SPECIFIC CONDITIONS:

14. Compliance shall be determined by the following test methods listed in 40 CFR 60, Appendix A (July, 1993).

Pollutant	EPA Method
PM/PM_{10}*	5 or 17**
NO_x	7E
CO	10
VOC	18 or 25A
Visible Emissions	9

NOTE: No other test methods may be used for compliance testing **unless** prior Department **written** approval **has been received.**
*** Assumption is that all PM is PM_{10}.**
**** Stack flue gas temperature must be less than 320°F for Method 17.**

15. The permittee shall provide the Department's Southwest District office with the following notifications required by 40 CFR 60.7:

- When construction commenced within 30 days of commencement of construction.
- Anticipated date of initial startup, 30 to 60 days prior to startup.
- Actual date of startup within 15 days after the startup.
- Notification of the date of the compliance tests not less than 30 days prior to the tests.

16. Pursuant to Rule 62-210.370(2), F.A.C., Air Operating **Reports**, 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: sulfur content and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emission limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

17. 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 (Rule 62-4.090, F.A.C.).

18. An application for an operation permit must be submitted to the Department's Southwest 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

SPECIFIC CONDITIONS:

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 (Rules 62-4.055 and 62-4.220, F.A.C.).

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Virginia B. Wetherell

Virginia B. Wetherell, Secretary

Revised Best Available Control Technology (BACT) Determination
Orange Cogeneration Limited Partnership
Polk County
AC53-233852A and AC53-233851B (PSD-FL-206B)

The applicant proposes to construct a 103 gross megawatt (MW) natural gas/biogas fired cogeneration facility in Bartow, Polk County, Florida. Major components of the cogeneration facility are: two combustion turbines (CT), each with a heat recovery steam generator (HRSG), an auxiliary boiler, steam turbine generator, and associated equipment. Both CTs will consume up to 776 million British thermal units per hour (MMBtu/hr) of gas fuel based on the lower heating value (LHV) of the fuel and produce 78 MW of electricity. The HRSGs, which do not use supplemental fuel, produce approximately 100,000 lbs/hr of steam and generate 25 MW of electricity. The fire-tube auxiliary boiler will consume 100 MMBtu/hr of gaseous fuel and produce approximately 83,000 lbs/hr of steam.

The following table lists the estimated maximum emissions from the cogeneration facility.

	Two CTs		Auxiliary Boiler	
Pollutant	lbs/hr	TPY	lbs/hr	TPY
Sulfur dioxide (SO_2)	2.34	10.3	0.3	1.3
Particulate Matter (PM/PM_{10})	10	43.8	1.0	4.4
Nitrogen Oxide (NO_X)	77.0	336.9	13.0	56.9
Carbon Monoxide (CO)	55.6	243.9	10.0	43.8
Volatile Organic Compounds (VOC)	7.96	34.9	4.3	18.8
Sulfuric Acid Mist	0.18	0.79	0.023	0.1

The cogeneration facility requires a BACT determination for NO_X, CO, PM, and VOC. In addition, the auxiliary boiler requires a BACT determination for **PM and** SO_2.

Date of Receipt of a BACT Application

July 1, 1993

BACT Requested by the Applicant

Pollutant	Proposed Limit	Air Pollution Control
Combustion Turbine		
PM	0.01 gr/scf*	Clean Fuel (gas) and Dry Low-NOx Combustors
NO_X	25 ppmvd @ 15%**	
	15 ppmvd @ 15%**	

CO	30 ppmvd	Combustion Controls
VOC	10 ppmvd	Combustion Controls

Auxiliary Boiler

PM	0.01 lbs/MMBtu	Clean Fuel (gas)
NO_X	0.13 lbs/MMBtu	Low-NO_X burners
SO_2	1 grain/100 CF natural gas	Clean Fuel (natural gas)
CO	0.10 lbs/MMBtu	Combustion Control
VOC	0.043 lbs/MMBtu	Combustion Control

*grains per standard cubic foot
**parts per million by volume dry at 15 percent oxygen
Applicant is committed to meeting 15 ppmvd @ 15% O_2 with dry low-NO_X combustors after December 31, 1997.

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 62-212, 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, then 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 cogeneration facilities 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 matter). Controlled generally by good 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.

Although all of the pollutants addressed in the BACT analysis may be subjected 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, 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.

<u>BACT Pollutant Analysis for the Combustion Turbines (CTs)</u>

Nitrogen Oxides (NO_X)

The emissions of nitrogen oxides represent a significant proportion of the total emissions generated by this project, and need to be controlled if deemed appropriate. As such, the applicant presented an extensive analysis of the different available technologies for NO_X control. The control technologies evaluated were selective catalytic reduction (SCR), wet injection (WI), dry low-NO_X combustor, NO_XOUT process, thermal DeNO_X, and selective noncatalytic reduction (SNCR).

NO_XOUT (urea with catalyst), thermal DeNO_X (ammonia with catalyst), and selective noncatalytic reduction system (ammonia without catalyst) to reduce NO_X emissions from the CT were not feasible because of process constraints (flue gas temperature too low and oxygen content too high).

SCR, dry low-NO_X combustor technology, and wet injection controls were considered feasible.

The applicant has stated that BACT for nitrogen oxides will be met

by using advanced combustor design to limit emissions to 25 ppmvd @ 15% O_2, when burning natural gas/biogas. After December 31, 1997, a limit of 15 ppmvd @ 15% O_2 will be met. Should 15 ppmvd NO_X @ 15% O_2 not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NO_X 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 SCR system.

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

The effect of exhaust gas temperature on NO_X reduction depends on the specific catalyst formulation and reactor design. Generally, SCR units can be designed to achieve effective NO_X control over a 100-300°F operating window within the bounds of 450-800°F, although recently developed zeolite-based catalysts are claimed to be capable of operating at temperatures as high as 950°F.

Most commercial SCR systems operate over a temperature range of about 600-750°F. At levels above and below this window, the specific catalyst formulation will not be effective and NO_X reduction will decrease. Operating at high temperatures can permanently damage the catalyst through sintering of surfaces.

Increased water vapor content in the exhaust gas (as would result from water or steam injection in the gas turbine combustor) can shift the operating temperature window of the SCR reactor to slightly higher levels.

Although technically feasible, the applicant has rejected using SCR on the combined cycle because of economic, energy, and environmental impacts. The applicant has identified the following limitations:

a) Reduced power output.
b) Emissions of unreacted ammonia (slip).
c) Disposal of hazardous waste generated (spent catalyst).
d) Ammonium bisulfate and ammonium sulfate particulate emissions (ammonium salts) due to the reaction of NH_3 with SO_3 present in the exhaust gases.
e) The energy impacts of SCR will reduce potential electrical power generation by 0.8 percent.

f) Incremental cost effectiveness for the application of SCR technology to the Orange Cogeneration L.P. project was considered to be $7,970 when emissions are at 25 ppm and $23,510 when emissions are at 15 ppm. Since SCR has been determined to be BACT for gas turbines, 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 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."

The cost associated with controlling NO_X emissions must take into account the potential operating problems that can occur with using SCR.

A concern associated with the use of SCR on combustion turbines 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 formed has a tendency to plug the tubes of the heat recovery steam generator leading to operational problems. As this is the case, SCR has been judged to be technically infeasible in some previous BACT determinations. This salt also increases particulate matter (PM/PM_{10}) emissions.

For natural gas/equivalent biogas firing operation, NO_X emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater ammonia injection ratio. 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 with NO_X emission limits ranging from 11.7 to 25 ppmvd depending on the efficiency of control established.

The applicant has indicated that the total levelized annual operating cost to install SCR on two CTs for this project at 100 percent capacity factor and burning natural gas/equivalent biogas is $1,648,000. A SCR would reduce the NO_X emissions by 207 TPY during the first 2 years of operation when the CTs emit 25 ppmvd @ 15% O_2. Thereafter, when dry-low NO_X controls are used, a SCR would reduce NO_X emissions by 120 TPY. When these reductions are taken into consideration, the total cost with SCR is $21,900 per

ton of NO_x removed. This calculated cost is higher than has previously been approved as BACT.

A review of the latest Department BACT determinations show limits of 15 ppmvd (natural gas) using **dry** low-NO_x **combustor** technology for gas turbines. Most combustion turbine manufacturers are currently developing programs using both steam/water injection and dry low-NO_x combustor **technology** to achieve **a** NO_x emission control level of 9 ppm when firing natural gas. Therefore, this technology will likely be available by 1998.

BACT Determination for NO_x for the CTs by the Department

NO_x Control

The information that the applicant presented and Department calculation indicate that the cost per ton of controlling NO_x for this turbine [$21,900 per ton] is high compared to other BACT determinations which require SCR. Based on the information presented by the applicant, the Department believes that the use of SCR for NO_x control is not justifiable as BACT at this time.

A review of the permitting activities for combustion turbine 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, and various capacity factors). Although, the cost and other concerns expressed by the applicant are valid, the Department, in this case, is willing to accept water/steam injection and **dry** low-NO_x **combustor technology** design as BACT for this project for a limited time (up to 12/31/97).

It is the Department's understanding that combustion turbine manufacturers are developing programs using either steam/water injection or dry low NO_x combustor technology to achieve a NO_x emission control level of 9 ppm when firing natural gas.

Based on this, the Department has determined to revise and lower the allowable BACT limit for this project to 15 ppmvd at 15% O_2 **and is to be achieved** no later than 1/1/98.

Carbon Monoxide (CO)

CO emissions are caused by incomplete combustion of the fossil fuel. The applicant investigated the use of combustion control and catalytic oxidation to control CO emission. With combustion control, CO emissions would be 30 ppmvd (236 TPY). With catalytic oxidation, CO emissions would be 10 ppmvd (78 TPY). The annualized cost of the catalyst system is $834,700 or $5,280 per ton of CO removed.

BACT Determination for CO for the CTs by the Department

Because catalytic oxidation would increase operation cost by $5,280 per ton of CO removed, and have no significant reduction in ambient air quality, the Department accepts an emission limit for CO of 30 ppmvd obtained through combustion control as BACT for these CTs.

Volatile Organic Compounds (VOC)

VOC emissions are caused by incomplete combustion of fossil fuel. The applicant proposes to meet an emission limit of 10 ppmvd through the use of clean fuel (natural gas) and combustion controls. This is similar to the BACT applied to other similar sources.

BACT Determinations for VOC for the CTs by the Department

The Department accepts an emission limit for VOC of 10 ppmvd obtained through the use of clean fuel (natural gas) and combustion control as BACT for these CTs.

Particulate Matter (PM/PM_{10})

PM/PM_{10} emissions are caused by incomplete combustion and traces of solids in the fuel. Proper combustion of clean fuel will emit only trace amounts of PM/PM_{10}. Each proposed CT will emit 5 lbs/hr of PM/PM_{10} or about 0.01 grains per standard cubic foot (gr/dscf). This is similar to the PM/PM_{10} emissions that can be met with the best air pollution control device, a baghouse.

BACT Determination for PM/PM_{10} for the CTs by the Department

The Department accepts an emission limit for PM/PM_{10} of 5 lbs/hr and a visible emissions limit of 10 percent opacity as BACT for each CT.

BACT Pollutant Analysis for the Auxiliary Boiler

Nitrogen Oxides (NO_X)

Nitrogen oxide emissions from boilers can be controlled by selective catalytic reduction (SCR), flue gas recirculation (FGR), and low-NO_X combustors.

The applicant proposes to meet a NO_X emission limit of 0.13 lbs/MMBtu through the use of low-NO_X combustors. This emission limit is below the new source performance standard for large boilers. The cost of using SCR or FGR would exceed $5,000 per ton NO_X removed.

BACT Determination for NO_x for the Auxiliary Boiler by the Department

The Department accepts an emission limit for NO_x of 0.13 lbs/MMBtu as BACT for this **auxiliary** boiler.

Particulate Matter (PM/PM_{10}), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC)

PM/PM_{10}, CO and VOC are the products of incomplete combustion of fossil fuel. The applicant proposes to meet emission limits of 0.01 lbs PM/MMBtu, 0.10 lbs CO/MMBtu, 0.04 lbs VOC/MMBtu through the use of clean fuel (natural gas/biogas) and **good** combustion control. Visible emissions shall not exceed 15 percent opacity.

BACT Determination for PM/PM_{10}, CO, and VOC for the Auxiliary Boiler by the Department

The Department accepts the use of clean fuel (natural gas/biogas) and **good** combustion controls to meet the proposed emission limits for PM/PM_{10}, CO, and VOC as BACT for this **auxiliary** boiler.

Sulfur Dioxide (SO_2)

Sulfur dioxide emissions are caused by the oxidation of sulfur in the fuel. Natural gas/biogas contains only trace amounts of sulfur - 1 grain per 100 cubic feet (gr/100 CF). This will result in an estimated sulfur dioxide emission of 0.30 lbs/hr. Cleaner fuel is not available and add on controls for SO_2 are not justified at this low emission rate.

BACT Determination for SO_2 for the Auxiliary Boiler by the Department

Natural gas/equivalent biogas fuel containing a maximum of 1 gr/100 CF is accepted as BACT for SO_2 control for this **auxiliary** boiler.

Summary of the **Revised** BACT Determination by Department

Pollutant	Emission Limits	EPA Test Methods
COMBUSTION TURBINE		
NOx	25 ppmvd @ 15% O_2 until Dec. 31, 1997	20
	15 ppmvd @ 15% O_2 after Dec. 31, 1997	20
CO	30 ppmvd	10
VOC	10 ppmvd	18 or 25A

PM/PM_{10}*	5 lbs/hr	5 or 17**
Visible Emissions	**10% Opacity**	9
AUXILIARY BOILER		
NO_x	0.13 lbs/MMBtu	7E
PM/PM_{10}*	0.01 lbs/MMBtu	5 or 17**
CO	0.10 lbs/MMBtu	10
VOC	0.04 lbs/MMBtu	18 or 25A
SO_2	1 gr sulfur/100 CF gas	fuel sulfur analysis
Visible Emissions	15% Opacity	9

* **Assumption is that all PM is PM_{10}.**
** Stack flue gas temperature must be less than 320°F.

Details of the Analysis May be Obtained by Contacting:
Martin Costello, P.E., BACT Coordinator
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

2/24/95
Date

Approved by:

Virginia B. Wetherell

Virginia B. Wetherell, Secretary
Dept. of Environmental Protection

3-7-95
Date

Memorandum

Florida Department of
Environmental Protection

PATTY

TO: Virginia Wetherell, Secretary

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

DATE: February 24, 1995

SUBJECT: Revision of Construction Permits and BACT
Orange Cogeneration, L.P.
AC 53-233852A & AC 53-233851B and PSD-FL-206B
Polk County

Attached for your approval and signature are two revised air construction permits and a revised Best Available Control Technology (BACT) determination for the referenced facility. The permits authorize the installation of two gas combustion turbines and one boiler in Bartow, Polk County, Florida.

The revised permits and BACT change the allowable nitrogen oxides emission standard units for the combustion turbines from a concentration at 15% oxygen and ISO standard ambient conditions to the observed concentration corrected to 15% oxygen.

I recommend your approval and signature.

HLR/wh/t

Attachments

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF REVISED PERMIT ISSUANCE

In the Matter of an
Application for Revised Permits by: DEP File Nos. AC53-233852A
AC53-233851B
(PSD-FL-206B)
Polk County

Mr. William R. Malenius
Director of Project Development
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Suite 400
Laguna Hills, CA 92653
_____/

NOTICE OF INTENT TO ISSUE REVISED PERMITS

The Department of Environmental Protection (Department) gives notice of its intent to revise the permits [AC53-233852 and AC53-233851A (PSD-FL-206A)] issued for the proposed auxiliary boiler and combustion turbines, respectively, at the Orange Cogeneration Limited Partnership facility located in Bartow, Polk County, Florida.

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 permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. 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; and,
(g) A statement of the relief sought by petitioner, stating precisely the action 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 intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application/ request 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 intent 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.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE REVISED PERMITS and all copies were mailed by certified mail before the close of business on 12-29-94 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.

Clerk

12-29-94
Date

Copies furnished to:

B. Thomas, SWD
J. Harper, EPA
J. Bunyak, NPS
L. Novak, PCESD
K. Kosky, P.E., KBN

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE REVISED PERMITS

AC53-233852A and AC53-233851B (PSD-FL-206B)

The Department of Environmental Protection gives notice of its intent to revise the air pollution source construction permits [AC53-233852A and AC53-233851B (PSD-FL-206B)] issued to Orange Cogeneration Limited Partnership, 23046 Avenida De La Carlota, Suite 400, Laguna Hills, CA 92653. The permits are for a natural gas/equivalent biogas fired cogeneration facility containing two combustion turbines, an auxiliary boiler, and associated equipment. It will be located in Bartow, Polk County, Florida.

The revision is to change the allowable nitrogen oxides emission standard for the combustion turbines from a concentration at 15 percent oxygen and ISO standard ambient conditions (ppmvd @ 15% O_2 at ISO) to the observed concentration corrected to 15 percent oxygen (ppmvd @ 15% O_2). Also, changes are being made to the permits to reflect changes made in the revised Best Available Control Technology (BACT) determination.

This revision does not change the allowable mass emission standard (lbs/hr and TPY) of any air pollutant emitted by this facility. The facility is subject to the Prevention of Significant Deterioration (PSD) regulations. The emission standards/ limitations are established by a BACT determination. The impact of the emissions will not cause or contribute to a violation of any ambient air quality standard or PSD increment.

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 permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. 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; and,
(g) A statement of the relief sought by petitioner, stating precisely the action 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 intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the 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 intent 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.

The application/request is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301

Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619-8218

Any person may send written comments on the proposed action to Mr. John Brown at the Department of Environmental Protection, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 30 days of the publication of this notice will be considered in the Department's final determination. Further, a public hearing can be requested by any person(s). Such requests must be submitted within 30 days of this notice.

Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Suite 400
Laguna Hills, CA 92653

Permit Number: AC53-233851B
PSD-FL-206B
Expiration Date: April 1, 1998
County: Polk
Latitude/Longitude: 27°52'15"N
81°49'31"W
Project: Two Combustion Turbines

This revised permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). 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 and specifically described as follows:

Installation of two natural gas/biogas fired GE LM 6000 (or equivalent) combustion turbines (CT), two heat recovery steam generators and one steam turbine. An auxiliary boiler (AC53-233852) is being permitted separately. The CTs will be equipped with **a staged combustion technology** dry low-NO_X system to control nitrogen oxides (NO_X) emissions. Each CT will be equipped with a 100 ft. high, 11 ft. diameter stack that will handle approximately 300,000 actual cubic feet per minute of flue gas at 230°F. The cogeneration facility will be located on Clear Springs Road, Bartow, Polk County, Florida.

The UTM coordinates of this facility are Zone 17, 418.75 km East and 3083.0 km North.

The emissions unit(s)/sources 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. Application received July 1, 1993.
2. Department's July 22, 1993 letter.
3. KBN's August 5, 1993 letter.
4. KBN's August 29, 1993 letter.
5. Tables 1 and 2, Allowable Emission Rates.
6. KBN's October 28, 1993 letter.
7. KBN's October 29, 1993 letter.
8. Department's February 18, 1994 letter.
9. KBN's March 11, 1994 letter.
10. Department's March 29, 1994 letter.
11. KBN's June 22, 1994 letter.
12. KBN's October 10, 1994 letter.

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 F.S. 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 F.S. 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.

10. The permittee agrees to comply with changes in Department rules and F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

GENERAL CONDITIONS:

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, 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)
(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.

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.

GENERAL CONDITIONS:

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:

This permit replaces permit No. AC53-233851/PSD-FL-206 and amended construction permit No. AC53-233851A/PSD-FL-206A.

Construction Requirements

1. Dry low-NO_x **combustion technology** systems shall be installed and operated on each combustion turbine (CT).

2. A system to continuously monitor the fuel consumption, nitrogen oxides emissions, and oxygen content of the flue gas shall be installed on each CT.

3. The heat recovery steam generator (HRSG) installed on each CT shall not be equipped with an auxiliary/duct burner.

4. Each CT stack shall be equipped with stack sampling facilities (sample ports, work platforms, access, and electrical power) that meet the specifications given in Rule 62-297.345, F.A.C.

Operation Limitations

5. The CTs shall comply with all requirements of 40 CFR 60, Subpart GG (July, 1993), Standard of Performance for Stationary Gas Turbines, which is adopted by reference in Rule 62-296.800(2)(a), F.A.C.

6. The facility is allowed to operate continuously, 8760 hours per year.

7. Only natural gas/biogas fuel shall be used for fuel at this facility.

8. Each CT shall have a maximum heat input of 368.3 MMBtu/hr, when using dry low NO_x technology to control NO_x emissions.

9. The operation of this facility shall not create a nuisance or discharge air pollutants that cause or contribute to objectionable odors **pursuant to Rule 62-296.320(2), F.A.C.**

ORANGE COGENERATION LIMITED PARTNERSHIP
AC53-233851B (PSD-FL-206B)
42 MW COMBINED CYCLE GAS TURBINES

Table 1 - Allowable Emission Rates[b] for each Combustion Turbine

Pollutant[a]	Control[e]	Allowable Emissions Standards/Limitations Concentration	Compl. Date	Maximum Corrected[c] lbs/hr	TPY	Basis for Limit
NO_x	DLN	25 ppmvd at 15% O_2[d]	initial	37.0	161.9	BACT
	DLN	15 ppmvd at 15% O_2[d]	1/1/98	22.1	97.0	BACT
CO	GC[f]	30 ppmvd		27.8	127.0	BACT
PM/PM_{10}	GC[f]			5	21.9	BACT
VOC	GC[f]	10 ppmvd		3.98	17.4	BACT

[a] Pollutant emissions are based on 8,760 hours per year operation firing natural gas or biogas.

[b] Allowable emissions, lbs/hr, at different inlet temperatures shall not exceed the rates given in the manufacturer's data required by specific condition No. 15.

[c] Maximum emission rates not to be exceeded.

[d] The NO_x maximum concentration will be lowered to 15 ppmvd at 15% O_2 by 1/1/98 using appropriate combustion technology improvements. Should this level of control not be achieved when the initial compliance demonstration stack tests are performed, the permittee must provide the Department with a plan and schedule to meet this standard. NO_x emission concentrations are to be corrected to 15 percent oxygen to demonstrate compliance with the NO_x emissions standard.

[e] Dry Low-NO_x (DLN) combustors.

[f] Good Combustion.

SPECIFIC CONDITIONS:

Emission Limitation

10. Prior to January 1, 1998, the maximum NO_x concentration, 1-hour average, from each CT/HRSG unit, shall not exceed 25 parts per million by volume dry corrected to 15 percent oxygen (25 ppmvd @ 15% O_2), as determined by the procedures in Specific Conditions Nos. 16, 17 and 18.

11. After December 31, 1997, the maximum NO_x concentration, 1-hour average, from each CT/HRSG unit, shall not exceed 15 ppmvd @ 15% O_2, as determined by the procedures in Specific Conditions Nos. 16, 17 and 18. Should the NO_x standard of 15 ppmvd @ 15% O_2 not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard. The permittee shall obtain prior approval from the Department for any air pollution control equipment not addressed in this permit that is needed to meet the NO_x emission standard.

12. The maximum emission rates for particulate matter (PM/PM_{10}), volatile organic compounds (VOC), NO_x, and carbon monoxide (CO) shall not exceed any of the rates listed in Table 1, Allowable Emission Rates.

13. Visible emissions shall not exceed 10 percent opacity, 6 minute average.

14. The emission rates for sulfur dioxide (SO_2) and sulfuric acid (H_2SO_4) mist, listed in the following table, shall be used for inventory purposes only.

Maximum Emission Rates for Each Combustion Turbine
For Inventory and PSD Tracking Purposes Only

Pollutant	Combustion Turbine Dry Low NO_x Combustion	
	lb/hr	TPY
SO_2	1.11	4.87
H_2SO_4 mist	0.085	0.37

15. Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review **by January 1, 1995.** Until new curves are approved by the Department or the combustion turbines meet the NO_x emission standard of 15 ppmvd @ 15% (whichever occurs first), the stack, operator, and emission data for the proposed combustion turbines in

SPECIFIC CONDITIONS:

Table 2-4 **(October 28, 1993)** will be used. The data will be used to determine compliance with the maximum allowable emission rates of the regulated air pollutants at different air inlet temperatures for these turbines.

Compliance Determination

16. Testing of emissions shall be conducted at **95-100%** of the manufacturer's rated heat input based on the **average air inlet temperature** for the CT during the test. **Compliance for NO_x emission limits shall be determined by calculating the concentration of NO_x (ppmvd at 15% O_2) and using the turbine manufacturer's thermal throughput rating for the average air inlet temperature by multiplying the permitted emission limit by the ratio of the tested heat input to the maximum heat input (MMBtu/hr) at this temperature.** Compliance with the visible emissions, NO_x, SO_2, CO, PM/PM_{10}, and VOC emission standards shall be determined within 60 days of achieving maximum production but not later than 180 days after initial firing of each CT (40 CFR 60.8). Compliance with the visible emissions **limitation and the** NO_x and SO_2 **emission** standards shall be determined annually thereafter. **Tests shall be conducted on both natural gas and biogas fuels. If the initial tests or fuel analyses show the emissions of air pollutants from the combustion turbines are independent of the fuel (natural gas or biogas fuel), then annual compliance tests can be conducted while the combustion turbines are burning either fuel.**

17. Compliance shall be determined by the following test methods listed in 40 CFR 60, Appendix A (July, 1993).

Pollutant	EPA Method
PM/PM_{10}*	5 or 17**
NO_x	20
CO	10
VOC	18 or 25A
Visible Emissions	9

NOTE: **No** other test methods may be used for compliance testing **unless** prior Department **written** approval **has been received.**
* **Assumption is that all PM is PM_{10}.**
** Stack flue gas temperature must be less than 320°F to use Method 17.

SPECIFIC CONDITIONS:

Monitoring

18. **NO_x and oxygen monitoring to meet the requirements of 40 CFR 60, Subpart GG, shall be accomplished using a continuous emission monitoring (CEM) system. The CEM system shall meet the requirements of 40 CFR 60, Appendix B. The requirements of 40 CFR 75, Appendices A and B, can be substituted for those of 40 CFR 60 provided the minimum criteria of 40 CFR 60 are met. NO_x monitoring to indicate compliance with the BACT limit shall be based on one hour average emissions determined on ppmvd @ 15% O_2.**

Administrative Requirement

19. Prior to January 1, 1998, the permittee shall provide a report showing how the allowable NO_x emissions of 15 ppmvd @ 15% O_2 ISO conditions is achieved by the CTs.

20. The permittee shall provide the Southwest District office with the following notifications required by 40 CFR 60.7:

- When construction commenced within 30 days of commencement of construction
- Anticipated date of initial starting 30 to 60 days prior to startup
- Actual date of startup up within 15 days after the starting
- Notification of the date of the compliance tests not less than 30 days prior to the test

21. Pursuant to Rule 62-210.370(2), F.A.C., Air Operating **Reports**, 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: sulfur content and the lower heating value of the fuel being fired, fuel usage, hours of operation, and air emissions. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

22. 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 (Rule 62-4.090, F.A.C.).

23. An application for an operation permit must be submitted to the **Department's** Southwest 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

SPECIFIC CONDITIONS:

construction permit, and compliance test reports as required by this permit (Rules 62-4.055 and 62-4.220, F.A.C.).

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Virginia B. Wetherell, Secretary

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Suite 400
Laguna Hills, CA 92653

Permit Number: AC53-233852A
PSD-FL-206B
Expiration Date: April 1, 1996
Latitude/Longitude: 27°52'15"N
81°49'31"W
Project: Auxiliary Boiler
County: Polk

This revised permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). 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 and specifically described as follows:

Installation of a 100 million British thermal unit per hour (MMBtu/hr) natural gas/equivalent biogas fired tube boiler equipped with a 65 foot high, 3.67 foot diameter stack designed to produce approximately 83,000 pounds per hour of saturated steam at 205 pounds per square inch gauge (psig) pressure. The heat input is based on the High Heating Value (HHV) of the fuel. The auxiliary boiler will be located on Clear Springs Road, Bartow, Polk County, Florida 33830.

The UTM coordinates of this facility are Zone 17, 418.75 kmE and 3083.0 kmN.

The emission unit/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. Application received July 1, 1993.
2. Department's July 22, 1993 letter.
3. KBN's August 5, 1993 letter.

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 F.S. 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 F.S. 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 F.S. after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by F.S. or Department rules.

11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, 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)
(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:

Construction Requirements

1. The auxiliary boiler shall be equipped with low-NO_x burners.

2. The boiler stack shall be equipped with stack sampling facilities (sample ports, work platforms, access, electrical power) that meet the specifications given in Rule 62-297.345, F.A.C.

Operation Limitations

3. The auxiliary boiler shall comply with all applicable requirements of 40 CFR 60, Subpart Dc.

4. The boiler is allowed to operate continuously, 8760 hours per year.

5. Only natural gas/equivalent biogas fuel shall be burned in this boiler.

6. The maximum heat input to the boiler, **which is** based on the high heating value (HHV) of the fuel, shall not exceed 100 MMBtu/hr.

7. The maximum allowable sulfur content (total) of the natural gas/biogas burned in the boiler shall not exceed 1 grain per 100 cubic feet (1 gr/100 CF) of gas.

SPECIFIC CONDITIONS:

8. The operation of this boiler shall not emit air pollutants that cause or contribute to objectionable odors.

9. Visible emissions shall not exceed 15 percent opacity.

10. Emissions from the boiler shall not exceed any of the following limits:

Pollutant	lb/MMBtu	lbs/hr	TPY
NO_X	0.13	13.0	56.9
CO	0.10	10.0	43.8
VOC	0.04	4.3	18.8

11. Sulfur dioxide (SO_2) emissions from the boiler shall not exceed 0.003 lb/MMBtu, 0.30 lb/hr, and 1.3 TPY. An analysis of the fuel showing the sulfur content does not exceed 1 grain of total sulfur per 100 cubic feet of gas will be accepted as proof of compliance with the sulfur dioxide emission limit. Total sulfur content of the gas shall be determined by test method ASTM D 1072-80 (40 CFR 60.17 (July, 1993)).

12. Particulate matter (PM/PM_{10}) emissions from the boiler shall not exceed 0.01 lb/MMBtu, 1.0 lb/hr, and 4.4 TPY. No PM/PM_{10} stack test is required if the visible emissions **limitation is** less than 15 percent opacity.

Testing Requirements

13. Testing of emissions shall be conducted with the source operating at **permitted** capacity. Capacity is defined as 90-100% of **the maximum operating rate allowed by the permit.** If it is impracticable to test at **permitted** capacity, then sources may be tested at less than **90% of the maximum operating rate allowed by the permit.** In this case, subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department. Compliance with the visible emissions **limitation and the** NO_X, CO, and VOC emission standards shall be determined within 60 days of achieving maximum production, but not later than 180 days after initial firing of the boiler. Compliance with the visible emissions **limitation** and **the** NO_X **emission** standards shall be determined annually thereafter.

SPECIFIC CONDITIONS:

14. Compliance shall be determined by the following test methods listed in 40 CFR 60, Appendix A (July, 1993).

Pollutant	EPA Method
PM/PM_{10}*	5 or 17**
NO_x	7E
CO	10
VOC	18 or 25A
Visible Emissions	9

NOTE: No other test methods may be used for compliance testing **unless** prior Department **written** approval **has been received.**
*** Assumption is that all PM is PM_{10}.**
**** Stack flue gas temperature must be less than 320°F for Method 17.**

15. The permittee shall provide the Department's Southwest District office with the following notifications required by 40 CFR 60.7:

- When construction commenced within 30 days of commencement of construction.
- Anticipated date of initial startup, 30 to 60 days prior to startup.
- Actual date of startup within 15 days after the startup.
- Notification of the date of the compliance tests not less than 30 days prior to the tests.

16. Pursuant to Rule 62-210.370(2), F.A.C., Air Operating **Reports**, 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: sulfur content and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emission limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

17. 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 (Rule 62-4.090, F.A.C.).

18. An application for an operation permit must be submitted to the Department's Southwest 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

SPECIFIC CONDITIONS:

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 (Rules 62-4.055 and 62-4.220, F.A.C.).

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

_____

Virginia B. Wetherell, Secretary

Revised Best Available Control Technology (BACT) Determination
Orange Cogeneration Limited Partnership
Polk County
AC53-233852A and AC53-233851B (PSD-FL-206B)

The applicant proposes to construct a 103 gross megawatt (MW) natural gas/biogas fired cogeneration facility in Bartow, Polk County, Florida. Major components of the cogeneration facility are: two combustion turbines (CT), each with a heat recovery steam generator (HRSG), an auxiliary boiler, steam turbine generator, and associated equipment. Both CTs will consume up to 776 million British thermal units per hour (MMBtu/hr) of gas fuel based on the lower heating value (LHV) of the fuel and produce 78 MW of electricity. The HRSGs, which do not use supplemental fuel, produce approximately 100,000 lbs/hr of steam and generate 25 MW of electricity. The fire-tube auxiliary boiler will consume 100 MMBtu/hr of gaseous fuel and produce approximately 83,000 lbs/hr of steam.

The following table lists the estimated maximum emissions from the cogeneration facility.

	Two CTs		Auxiliary Boiler	
Pollutant	lbs/hr	TPY	lbs/hr	TPY
Sulfur dioxide (SO_2)	2.34	10.3	0.3	1.3
Particulate Matter (PM/PM_{10})	10	43.8	1.0	4.4
Nitrogen Oxide (NO_X)	77.0	336.9	13.0	56.9
Carbon Monoxide (CO)	55.6	243.9	10.0	43.8
Volatile Organic Compounds (VOC)	7.96	34.9	4.3	18.8
Sulfuric Acid Mist	0.18	0.79	0.023	0.1

The cogeneration facility requires a BACT determination for NO_X, CO, PM, and VOC. In addition, the auxiliary boiler requires a BACT determination for **PM and** SO_2.

Date of Receipt of a BACT Application

July 1, 1993

BACT Requested by the Applicant

Pollutant	Proposed Limit	Air Pollution Control
Combustion Turbine		
PM	0.01 gr/scf*	Clean Fuel (gas) and Dry Low-NOx Combustors
NO_X	25 ppmvd @ 15%**	
	15 ppmvd @ 15%**	

CO	30 ppmvd	Combustion Controls
VOC	10 ppmvd	Combustion Controls

Auxiliary Boiler

PM	0.01 lbs/MMBtu	Clean Fuel (gas)
NO_X	0.13 lbs/MMBtu	Low-NO_X burners
SO_2	1 grain/100 CF natural gas	Clean Fuel (natural gas)
CO	0.10 lbs/MMBtu	Combustion Control
VOC	0.043 lbs/MMBtu	Combustion Control

*grains per standard cubic foot
**parts per million by volume dry at 15 percent oxygen
Applicant is committed to meeting 15 ppmvd @ 15% O_2 with dry low-NO_X combustors after December 31, 1997.

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 62-212, 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, then 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 cogeneration facilities 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 matter). Controlled generally by good 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.

Although all of the pollutants addressed in the BACT analysis may be subjected 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, 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.

BACT Pollutant Analysis for the Combustion Turbines (CTs)

Nitrogen Oxides (NO_X)

The emissions of nitrogen oxides represent a significant proportion of the total emissions generated by this project, and need to be controlled if deemed appropriate. As such, the applicant presented an extensive analysis of the different available technologies for NO_X control. The control technologies evaluated were selective catalytic reduction (SCR), wet injection (WI), dry low-NO_X combustor, NO_XOUT process, thermal DeNO_X, and selective noncatalytic reduction (SNCR).

NO_XOUT (urea with catalyst), thermal DeNO_X (ammonia with catalyst), and selective noncatalytic reduction system (ammonia without catalyst) to reduce NO_X emissions from the CT were not feasible because of process constraints (flue gas temperature too low and oxygen content too high).

SCR, dry low-NO_X combustor technology, and wet injection controls were considered feasible.

The applicant has stated that BACT for nitrogen oxides will be met

by using advanced combustor design to limit emissions to 25 ppmvd @ 15% O_2, when burning natural gas/biogas. After December 31, 1997, a limit of 15 ppmvd @ 15% O_2 will be met. Should 15 ppmvd NO_X @ 15% O_2 not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NO_X 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 SCR system.

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

The effect of exhaust gas temperature on NO_X reduction depends on the specific catalyst formulation and reactor design. Generally, SCR units can be designed to achieve effective NO_X control over a 100-300°F operating window within the bounds of 450-800°F, although recently developed zeolite-based catalysts are claimed to be capable of operating at temperatures as high as 950°F.

Most commercial SCR systems operate over a temperature range of about 600-750°F. At levels above and below this window, the specific catalyst formulation will not be effective and NO_X reduction will decrease. Operating at high temperatures can permanently damage the catalyst through sintering of surfaces.

Increased water vapor content in the exhaust gas (as would result from water or steam injection in the gas turbine combustor) can shift the operating temperature window of the SCR reactor to slightly higher levels.

Although technically feasible, the applicant has rejected using SCR on the combined cycle because of economic, energy, and environmental impacts. The applicant has identified the following limitations:

a) Reduced power output.
b) Emissions of unreacted ammonia (slip).
c) Disposal of hazardous waste generated (spent catalyst).
d) Ammonium bisulfate and ammonium sulfate particulate emissions (ammonium salts) due to the reaction of NH_3 with SO_3 present in the exhaust gases.
e) The energy impacts of SCR will reduce potential electrical power generation by 0.8 percent.

f) Incremental cost effectiveness for the application of SCR technology to the Orange Cogeneration L.P. project was considered to be $7,970 when emissions are at 25 ppm and $23,510 when emissions are at 15 ppm. Since SCR has been determined to be BACT for gas turbines, 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 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."

The cost associated with controlling NO_X emissions must take into account the potential operating problems that can occur with using SCR.

A concern associated with the use of SCR on combustion turbines 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 formed has a tendency to plug the tubes of the heat recovery steam generator leading to operational problems. As this is the case, SCR has been judged to be technically infeasible in some previous BACT determinations. This salt also increases particulate matter (PM/PM_{10}) emissions.

For natural gas/equivalent biogas firing operation, NO_X emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater ammonia injection ratio. 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 with NO_X emission limits ranging from 11.7 to 25 ppmvd depending on the efficiency of control established.

The applicant has indicated that the total levelized annual operating cost to install SCR on two CTs for this project at 100 percent capacity factor and burning natural gas/equivalent biogas is $1,648,000. A SCR would reduce the NO_X emissions by 207 TPY during the first 2 years of operation when the CTs emit 25 ppmvd @ 15% O_2. Thereafter, when dry-low NO_X controls are used, a SCR would reduce NO_X emissions by 120 TPY. When these reductions are taken into consideration, the total cost with SCR is $21,900 per

ton of NO_X removed. This calculated cost is higher than has previously been approved as BACT.

A review of the latest Department BACT determinations show limits of 15 ppmvd (natural gas) using **dry** low-NO_X **combustor** technology for gas turbines. Most combustion turbine manufacturers are currently developing programs using both steam/water injection and dry low-NO_X combustor **technology** to achieve **a** NO_X emission control level of 9 ppm when firing natural gas. Therefore, this technology will likely be available by 1998.

BACT Determination for NO_X for the CTs by the Department

NO_X Control

The information that the applicant presented and Department calculation indicate that the cost per ton of controlling NO_X for this turbine [$21,900 per ton] is high compared to other BACT determinations which require SCR. Based on the information presented by the applicant, the Department believes that the use of SCR for NO_X control is not justifiable as BACT at this time.

A review of the permitting activities for combustion turbine 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, and various capacity factors). Although, the cost and other concerns expressed by the applicant are valid, the Department, in this case, is willing to accept water/steam injection and **dry** low-NO_X **combustor technology** design as BACT for this project for a limited time (up to 12/31/97).

It is the Department's understanding that combustion turbine manufacturers are developing programs using either steam/water injection or dry low NO_X combustor technology to achieve a NO_X emission control level of 9 ppm when firing natural gas.

Based on this, the Department has determined to revise and lower the allowable BACT limit for this project to 15 ppmvd at 15% O_2 **and is to be achieved** no later than 1/1/98.

Carbon Monoxide (CO)

CO emissions are caused by incomplete combustion of the fossil fuel. The applicant investigated the use of combustion control and catalytic oxidation to control CO emission. With combustion control, CO emissions would be 30 ppmvd (236 TPY). With catalytic oxidation, CO emissions would be 10 ppmvd (78 TPY). The annualized cost of the catalyst system is $834,700 or $5,280 per ton of CO removed.

BACT Determination for CO for the CTs by the Department

Because catalytic oxidation would increase operation cost by $5,280 per ton of CO removed, and have no significant reduction in ambient air quality, the Department accepts an emission limit for CO of 30 ppmvd obtained through combustion control as BACT for these CTs.

Volatile Organic Compounds (VOC)

VOC emissions are caused by incomplete combustion of fossil fuel. The applicant proposes to meet an emission limit of 10 ppmvd through the use of clean fuel (natural gas) and combustion controls. This is similar to the BACT applied to other **similar** sources.

BACT Determinations for VOC for the CTs by the Department

The Department accepts an emission limit for VOC of 10 ppmvd obtained through the use of clean fuel (natural gas) and combustion control as BACT for these CTs.

Particulate Matter (PM/PM_{10})

PM/PM_{10} emissions are caused by incomplete combustion and traces of solids in the fuel. Proper combustion of clean fuel will emit only trace amounts of PM/PM_{10}. Each proposed CT will emit 5 lbs/hr of PM/PM_{10} or about 0.01 grains per standard cubic foot (gr/dscf). This is similar to the PM/PM_{10} emissions that can be met with the best air pollution control device, a baghouse.

BACT Determination for PM/PM_{10} for the CTs by the Department

The Department accepts an emission limit for PM/PM_{10} of 5 lbs/hr and **a visible emissions limit of** 10 percent opacity as BACT for each CT.

BACT Pollutant Analysis for the Auxiliary Boiler

Nitrogen Oxides (NO_x)

Nitrogen oxide emissions from boilers can be controlled by selective catalytic reduction (SCR), flue gas recirculation (FGR), and low-NO_x combustors.

The applicant proposes to meet a NO_x emission limit of 0.13 lbs/MMBtu through the use of low-NO_x combustors. This emission limit is below the new source performance standard for large boilers. The cost of using SCR or FGR would exceed $5,000 per ton NO_x removed.

BACT Determination for NO_x for the Auxiliary Boiler by the Department

The Department accepts an emission limit for NO_x of 0.13 lbs/MMBtu as BACT for this **auxiliary** boiler.

Particulate Matter (PM/PM_{10}), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC)

PM/PM_{10}, CO and VOC are the products of incomplete combustion of fossil fuel. The applicant proposes to meet emission limits of 0.01 lbs PM/MMBtu, 0.10 lbs CO/MMBtu, 0.04 lbs VOC/MMBtu through the use of clean fuel (natural gas/biogas) and **good** combustion control. Visible emissions shall not exceed 15 percent opacity.

BACT Determination for PM/PM_{10}, CO, and VOC for the Auxiliary Boiler by the Department

The Department accepts the use of clean fuel (natural gas/biogas) and **good** combustion controls to meet the proposed emission limits for PM/PM_{10}, CO, and VOC as BACT for this **auxiliary** boiler.

Sulfur Dioxide (SO_2)

Sulfur dioxide emissions are caused by the oxidation of sulfur in the fuel. Natural gas/biogas contains only trace amounts of sulfur - 1 grain per 100 cubic feet (gr/100 CF). This will result in an estimated sulfur dioxide emission of 0.30 lbs/hr. Cleaner fuel is not available and add on controls for SO_2 are not justified at this low emission rate.

BACT Determination for SO_2 for the Auxiliary Boiler by the Department

Natural gas/equivalent biogas fuel containing a maximum of 1 gr/100 CF is accepted as BACT for SO_2 control for this **auxiliary** boiler.

Summary of the **Revised** BACT Determination by Department

Pollutant	Emission Limits	EPA Test Methods
COMBUSTION TURBINE		
NOx	25 ppmvd @ 15% O_2 until Dec. 31, 1997	20
	15 ppmvd @ 15% O_2 after Dec. 31, 1997	**20**
CO	30 ppmvd	10
VOC	10 ppmvd	18 or 25A

PM/PM_{10}*	5 lbs/hr	5 or 17**
Visible Emissions	10% Opacity	9
AUXILIARY BOILER		
NO_x	0.13 lbs/MMBtu	7E
PM/PM_{10}*	0.01 lbs/MMBtu	5 or 17**
CO	0.10 lbs/MMBtu	10
VOC	0.04 lbs/MMBtu	18 or 25A
SO_2	1 gr sulfur/100 CF gas	fuel sulfur analysis
Visible Emissions	15% Opacity	9

* Assumption is that all PM is PM_{10}.
** Stack flue gas temperature must be less than 320°F.

Details of the Analysis May be Obtained by Contacting:
Martin Costello, P.E., BACT Coordinator
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

Date

Approved by:

Virginia B. Wetherell, Secretary
Dept. of Environmental Protection

Date

FLORIDA

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

December 22, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William R. Malenius
Director of Project Development
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Laguna Hills, CA 92653

Dear Mr. Malenius:

Re: Revision of Construction Permits
AC53-233852A and AC53-233851B (PSD-FL-206B)

The Department has reviewed KBN Engineering and Applied Sciences, Inc.'s October 10, 1994 letter requesting a change in the emission standards in the referenced permits for the combustion turbines (AC53-233851B) to be built for Orange Cogeneration Limited Partnership in Bartow, Polk County, Florida. Clarification of the emission limits for these units was also requested. In response to this request, the Department is proposing to revise the construction permit to change the units of the nitrogen oxides concentration standard to parts per million volume dry, corrected to 15 percent oxygen (ppmvd @ 15% O_2). The allowable emissions of all air pollutants from these units in pounds per hour and tons per year, which are a function of the combustion turbines air inlet temperature, are not being changed. The Department has retained the requirement for installation of nitrogen oxides and oxygen continuous emission monitors. Data from these instruments will indicate if the combustion turbines are properly operated and maintained. The Department is also retaining the requirement for compliance tests on both natural gas and biogas fuels as neither emissions or equivalency to natural gas can be estimated from an analysis of the fuels. In addition, the permit (AC53-233852A) for the auxiliary boiler is being revised to reflect changes in the testing requirements of the BACT.

Please submit the proof of publication of the attached Notice of Intent to Issue Permit and any written comments you wish to have considered concerning the Department's proposed action to Mr. John Brown on the Bureau of Air Regulation.

Sincerely,

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

CHF/WH/bjb/mc

Attachment

cc: Bill Thomas, SWD
Ken Kosky, KBN
Jewell Harper, EPA
L. Novak, PCESD
John Bunyak, NPS

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT ISSUANCE

CERTIFIED MAIL

In the Matter of an Application for Permit by:

DEP File No. AC53-233851A
Polk County

Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota, Suite 400
Laguna Hills, California 92650
_____/

Enclosed is revised Permit Number AC53-233851A to construct two natural gas/equivalent biogas fired gas turbines with heat recovery steam generators and a steam turbine in Bartow, Polk County, Florida. This permit is being revised to allow additional time for the permittee to furnish the manufacturer's curves for the combustion turbine, clarify the monitoring and testing requirements, and to make footnote[d] of Table 1 consistent with Specific Condition No. 11. This permit is issued pursuant to Chapter 403, Florida Statutes, and Chapters 17-212 and 17-4, Florida Administrative Code.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. 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, within 14 days of receipt of this Permit. 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, Florida Statutes.

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; and

(g) A statement of the relief sought by petitioner, stating precisely the action 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 permit. Persons whose substantial interests will be affected by any decision of the Department with regard to the 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 notice 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, F.A.C.

This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this permit will not be effective until further Order of the Department.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order 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 the Final Order is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

for C. H. Fancy, P.E., Chief
Bureau of Air Regulation
Mail Station #5505
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 ISSUANCE and all copies were mailed by certified mail before the close of business on 8/16/94 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 (Clerk) 8/16/94 (Date)

Copies furnished to:
B. Thomas, SWD
J. Harper, EPA
J. Bunyak, NPS
L. Novak, PCESD
K. Kosky, NBD (8-23-94)

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Suite 400
Laguna Hills, CA 92653

Permit Number: AC53-233851A
PSD-FL-206A
Expiration Date: April 1, 1998
County: Polk
Latitude/Longitude: 27°52'15"N
81°49'31"W
Project: Two Combustion Turbines

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-212 and 17-4. 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 and specifically described as follows:

Installation of two natural gas/equivalent biogas fired GE LM 6000 (or equivalent) combustion turbines (CT), two heat recovery steam generators, one steam turbine and, being permitted separately, an auxiliary boiler (AC53-233852). The CTs will be equipped with **a staged combustion technology** dry low NO_X system to control nitrogen oxides (NO_X) emission. Each CT will be equipped with a 100 ft. high, 11 ft. diameter stack that will handle approximately 300,000 actual cubic feet per minute of flue gas at 230°F. The cogeneration facility will be located on Clear Springs Road, Bartow, Polk County, Florida 33830.

The UTM coordinates of this facility are Zone 17, 418.75 kmE and 3083.0 kmN.

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.

This permit replaces permit Nos. AC53-233851 and PSD-FL-206.

Attachments are listed below:
1. Application received July 1, 1993
2. DEP July 22, 1993, letter
3. KBN August 5, 1993, letter
4. KBN August 29, 1993, letter
5. Tables 1 and 2, Allowable Emission Rates
6. KBN October 28, 1993, letter
7. KBN October 29, 1993 letter
8. DEP February 18, 1994, letter
9. KBN March 11, 1994, letter
10. DEP March 29, 1994, letter
11. KBN June 22, 1994, letter

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, Florida Statutes. 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), Florida Statutes, 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, Florida Statutes. 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 Florida Administrative Code Rules 17-4.120 and 17-730.300, 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)
(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:

Construction Requirements

1. Dry low NO_x **combustion technology** systems shall be installed and operated on each combustion turbine (CT).

2. A system, accurate to within 5 percent, to continuously monitor the fuel consumption shall be installed on each CT.

3. The heat recovery steam generator (HRSG) installed on each CT shall not be equipped with an auxiliary/duct burner.

4. Each CT stack shall be equipped with stack sampling facilities (sample ports, work platforms, access, and electrical power) that meet the specifications given in F.A.C. Rule 17-297.345.

Operation Limitations

5. The CTs shall comply with all requirements of 40 CFR 60, Subpart GG (July, 1993), Standard of Performance for Stationary Gas Turbines, which is adopted by reference in F.A.C. Rule 17-296.800(2)(a).

SPECIFIC CONDITIONS:

6. The facility is allowed to operate continuously, 8760 hours per year.

7. Only natural gas/equivalent biogas fuel shall be used for fuel at this facility.

8. Each CT shall have a maximum heat input (LHV) of 368.3 MMBtu/hr, which is approximately 389,300 CFH of natural gas, when using dry low NO_X technology to control NO_X emissions.

9. The operation of this facility shall not create a nuisance or discharge air pollutants that cause or contribute to objectionable odors.

Emission Limitation

10. Prior to January 1, 1998, the maximum NO_X concentration, 1 hour average, from each CT/HRSG unit shall not exceed 25 parts per million by volume dry corrected to 15 percent oxygen at ISO standard ambient conditions (ppmvd @ 15% O_2 at ISO conditions), as determined by the procedures in Specific Conditions No. 16, 17 and 18.

11. After December 31, 1997, the maximum NO_X concentration, 1-hour average, from each CT/HRSG unit shall not exceed 15 ppmvd @ 15% O_2 at ISO conditions as determined by the procedure in Specific Conditions Nos. 16, 17 and 18. Should 15 ppmvd NO_X @ 15% O_2 at ISO conditions not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard. The permittee shall obtain prior approval from the Department for any air pollution control equipment not addressed in this permit that is needed to meet the NO_X emission standard.

12. The maximum emission rates for particulate matter (PM/PM_{10}), volatile organic compounds (VOC), NO_X, and carbon monoxide (CO) shall not exceed any of the rates listed in Table 1, Allowable Emission Rates.

13. Visible emissions shall not exceed 10 percent opacity, 6 minute average.

ORANGE COGENERATION LIMITED PARTNERSHIP
AC53-233851 (PSD-FL-206)
42 MW COMBINED CYCLE GAS TURBINE

Table 1 - Allowable Emission Rates for each Combustion Turbine

Pollutant[a]	Control[e]	Allowable Emissions Standards/Limitations					Basis for Limit
			ISO Conditions[b]		Maximum Corrected[c]		
		Basis	lb/hr	TPY	lb/hr	TPY	
NO_x	DLN	25 ppmvd at 15% O_2/ISO at full load	34.8	152.3	37.0	161.9	BACT
CO	DLN	30 ppmvd	27	118.2	27.8	127.0	BACT
PM/PM_{10}	DLN	5 lb/hr	5	21.9	5	21.9	BACT
VOC	DLN	10 ppmvd	3.86	16.9	3.98	17.4	BACT

[a] Pollutant emissions are based on 8,760 hours per year operation firing natural gas or equivalent biogas at 59° F.

[b] Emissions rates are based on 100% load and at ISO conditions. Pollutant emission rates may vary depending on the air inlet temperature to the combustion turbine (CT) and CT characteristics. Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review by January 1, 1995. Subject to approval by the Department, the manufacturer's curve shall be used to establish pollutant emission rates over a range of temperature for the purpose of compliance determination.

[c] Maximum emission rates not to be exceeded.

[d] The NO_x maximum concentration will be lowered to 15 ppmvd at 15% O_2 at ISO conditions by 1/1/98 using appropriate combustion technology improvements. Should this level of control not be achieved when the initial compliance demonstration stack tests are performed, the permittee must provide the Department with a plan and schedule to meet this standard. NO_x emission concentrations are to be corrected to ISO conditions to demonstrate compliance with the NO_x emissions standard.

[e] Dry Low-NO_x (DLN) combustors.

SPECIFIC CONDITIONS:

14. The emission rates for sulfur dioxide (SO_2) and sulfuric acid mist (H_2SO_4), listed in the following table, shall be used for inventory purposes only.

Maximum Emission Rates for Each Combustion Turbine
for inventory purposes or PSD tracking

Pollutant	Combustion Turbine Dry Low NO_x Combustion	
	lb/hr	TPY
SO_2	1.11	4.87
H_2SO_4	0.085	0.37

15. Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review **by January 1, 1995.** Until new curves are approved by the Department or the combustion turbines meet the NO_x emission standard of 15 ppmvd @ 15% at ISO conditions (whichever occurs first), the stack, operator, and emission data for the proposed combustion turbines in Table 2-4 **(October 28, 1993)** will be used. The data will be used to determine compliance with the maximum allowable emission rates of the regulated air pollutants at different air inlet temperatures for these turbines.

Compliance Determination

16. Testing of emissions shall be conducted at **95-100%** of the manufacturer's rated heat input based on the **average air inlet temperature** for the CT during the test. **Compliance for NO_x emission limits shall be determined by calculating the concentration of NO_x (ppmvd at 15% O_2 at ISO) and using the turbine manufacturer's thermal throughput rating for the average air inlet temperature by multiplying the permitted emission limit at ISO conditions (59°F) by the ratio of the tested heat input to the maximum heat input (MMBtu/hr) at ISO conditions.** Compliance with the visible emissions, NO_x, SO_2, CO, PM/PM_{10}, and VOC emission standards shall be determined within 60 days of achieving maximum production but not later than 180 days after initial firing of each CT (40 CFR 60.8). Compliance with the visible emission, NO_x, and SO_2 standards shall be determined annually thereafter. **Unless fuel analyses show the composition of natural gas and the biogas are identical, tests shall be conducted on both natural gas and biogas fuels. If the initial tests or fuel analyses show the emissions of air pollutants from the combustion turbines are independent of the fuel (natural gas or equivalent biogas fuel), then annual compliance tests can be conducted while the combustion turbines are burning either fuel.**

SPECIFIC CONDITIONS:

17. Compliance shall be determined by the following test methods listed in 40 CFR 60, Appendix A (July, 1993).

EPA Method	Pollutant
5, 17*, or 201A and 202	PM/PM_{10}
9	Visible Emissions
10	CO
20	NO_X and SO_2
18, 25, or 25A	VOC

Other test methods may be used for compliance testing after prior Department approval.

*Stack flue gas temperature must be less than 320°F to use Method 17.

18. **NO_X and oxygen monitoring to meet the requirements of 40 CFR 60, Subpart GG, shall be accomplished using a continuous emission monitoring (CEM) system. The CEM system shall meet the requirements of 40 CFR 60, Appendix B. The requirements of 40 CFR 75, Appendices A and B, can be substituted for those of 40 CFR 60 provided the minimum criteria of 40 CFR 60 are met. NO_X monitoring to demonstrate performance with the BACT limit shall be based on one hour average emissions determined on ppmvd @ 15% O_2 at ISO conditions.**

Administrative Requirement

19. Prior to January 1, 1998, the permittee shall provide a report showing how the allowable NO_X emissions of 15 ppmvd @ 15% O_2 ISO conditions is achieved by the CTs.

20. The permittee shall provide the Southwest District office with the following notifications required by 40 CFR 60.7:

- When construction commenced within 30 days of commencement of construction
- Anticipated date of initial starting 30 to 60 days prior to startup
- Actual date of startup up within 15 days after the starting
- Notification of the date of the compliance tests not less than 30 days prior to the test

21. Pursuant to F.A.C. Rule 17-210.300(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: sulfur content and the lower heating value of the fuel being fired, fuel usage, hours of operation, and air emissions. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

SPECIFIC CONDITIONS:

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

23. An application for an operation permit must be submitted to the Southwest 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).

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Virginia B. Wetherell

Virginia B. Wetherell, Secretary

Florida Department of
Environmental Protection

Memorandum

TO: Virginia B. Wetherell

FROM: Howard L. Rhodes

DATE: August 9, 1994

SUBJECT: Amendment of Permit
Orange Cogeneration L.P.

Attached for your approval and signature is an amended (reissued) permit to construct two cogeneration units in Bartow, Polk County, Florida. The original construction permit was issued on December 30, 1993. It was amended in February, 1994, to allow the permittee to update the performance curves for the combustion turbines. The permittee is now asking for additional time to provide the performance curves for the combustion turbine and clarification of some operation, monitoring, and testing requirements. The reissued permit incorporates all approved amendments since the original permit was issued.

I recommend your approval of the amended (reissued) construction permit.

Attachment

CHF/WH/bjb

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

February 18, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Thomas F. Donovan
Orange Cogeneration Limited Partnership
1901 Clear Springs Road
Bartow, Florida 33830

Dear Mr. Donovan:

Re: AC 53-233851

The Department acknowledges receipt of your February 3, 1994, letter responding to Specific Condition No. 17 of the referenced permit. You stated that two GE LM 6000 combustion turbines (CT) were selected for the proposed cogeneration facility on November 8, 1993, but that the manufacturer's emission rate correction curves at ambient temperatures for different operating loads will not be available until mid - 1994. We also note that the units for the nitrogen oxides emission standard in the construction permit are parts per million by volume corrected to 15 percent oxygen and ISO standard ambient conditions (ppmvd @ 15% O_2 ISO conditions). The units for this emission standard in GE's November 19, 1993, letter to Mr. Williams does not mention the ISO standard ambient condition correction. You may want to clarify this matter with GE.

In response to your letter, the Department is amending Specific Condition No. 17 of Permit No. AC 53-233851 as follows:

FROM:

Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review 90 days after selection of the CT. Subject to approval by the Department, the manufacturer's curve may be used to establish pollutant emission rates over a range of inlet air temperatures for the purpose of compliance determination. The maximum allowable emissions at different air inlet temperatures shall be based on the CT manufacturer's curve but shall not exceed the maximum rates listed in Tables 1 and 2, Allowable Emission Rates.

3-10-94
Told Bob McCann, KBN, tables referred to are revisions that include 47°F operation temp and are consistent with tables in permit
[initials]

TO:

Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review by September 1, 1994. Until new curves are approved by the Department or the combustion turbines meet the NO_X emission standard of 15 ppmvd @ 15% ISO conditions (whichever occurs first), the stack, operating, and emission data for the proposed combustion turbines in Tables 2-2, 2-3, and 2-4 of the application will be used. The data will be used to determine compliance with the maximum allowable emission rates of the regulated air pollutants at different air inlet temperatures for these turbines.

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. 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, Florida Statutes.

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, F.A.C.

A copy of this letter must be filed with Permit No. AC 53-233851 and shall become a condition of that permit.

Sincerely,

Howard L. Rhodes

Howard L. Rhodes
Director
Division of Air Resources Management

HLR/WH/bjb

Attachment: Orange Cogeneration February 3, 1994 letter

cc: Bill Thomas, SWD
Linda Novak, PCESD
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 2/23/94 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 2/23/94
Clerk Date

Florida Department of

Memorandum **Environmental Protection**

CLAIR

TO: Howard L. Rhodes

FROM: Clair H. Fancy

DATE: February 18, 1994

SUBJ: Amendment of Permit
Orange Cogeneration L.P.

Attached for your approval and signature is a letter that will amend the construction permit for a natural gas fired cogeneration facility that is under construction in Bartow, Polk County, Florida. The amendment will allow additional time for the permittee to update the performance curves for the combustion turbines.

I recommend your approval and signature.

CHF/WH/bjb

Attachment

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

Mr. William R. Malenius
Director of Project Development
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Laguna Hills, CA 92653

DEP File No. AC 53-233851
AC 53-233852
PSD-FL-206
Polk County

Enclosed are Permit Numbers AC 53-233851 and AC 53-233852 (PSD-FL-206) for the construction of a natural gas/equivalent biogas fired 103 megawatt cogeneration facility to be located near Orange-Co. of Florida, Inc. on Clear Spring Road in Bartow, Polk County, Florida. These permits are issued pursuant to Section 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 PROTECTION

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 12/30/93 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. Bentwell 12/30/93
(Clerk) (Date)

Copies furnished to:
B. Thomas, SWD
J. Harper, EPA
J. Bunyak, NPS
L. Novak, PCESD
K. Kosky, KBN

Final Determination

Orange Cogeneration Limited Partnership
Bartow, Florida
Polk County

Two Combustion Turbines
One Auxiliary Boiler

Permit No. AC53-233851
AC53-233852
PSD-FL-206

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

December 29, 1993

Final Determination

The Technical Evaluation and Preliminary Determination for the permits to construct a 103 megawatt cogeneration facility containing two gas combustion turbines and one auxiliary boiler in Bartow, Polk County, Florida, was distributed on November 18, 1993. The Notice of Intent to Issue was published in the Tampa Tribune on November 20, 1993. Copies of the evaluation were available for public inspection at the Department offices in Tampa and Tallahassee.

Comments on the evaluation and proposed permits were submitted by the National Park Service (NPS) and the applicant. The National Park Service stated that the Federal Land Manager had determined that the potential for the proposed sources to have a significant impact on the air quality related values (AQRVs) of the Chassahowitzka Wilderness Area was low. The NPS also asked that Specific Condition No. 13 of the permit for the combustion turbines (CTs) (AC 53-233851) be revised to require the use of a selective catalytic reduction system (SCR) if the turbine's nitrogen oxide (NO_X) emissions exceeded 15 ppmvd @ 15% O_2, ISO conditions, and that the NO_X emission standard be lowered if it is determined that a lower NO_X emission rate is achievable by a SCR. After consideration of this request, the Department has revised Specific Condition No. 13 to require the applicant to meet the limit that is in the permit, by installing any additional control equipment that may be required.

The applicant noted that several of the emission rates listed in the evaluation were incorrect (not based on the inlet air temperature at which the CTs will operate) and requested permission to use additional EPA approved stack test methods to show compliance with the emissions limits in the permits. In response to their comments, the following changes have been made.

In Table 2, Allowable Emission Rates for each combustion turbine, the volatile organic compound (VOC) emissions for dry low NO_X (DLN) control are reduced from 19.8 to 16.9 TPY and the carbon monoxide (CO) emissions from 161.9 to 127.0 TPY. In the Best Available Control Technology determination, the carbon monoxide emissions from two CTs are reduced from 57.2 lbs/hr and 343.9 TPY to 55.6 lbs/hr and 243.9 TPY, respectively. The volatile organic compound emissions are reduced from 8.17 to 7.96 lbs/hr.

The following stack test methods are added to the permits.

EPA Method 17 for PM/PM_{10} provided the stack temperature is less than 320°F.
EPA Method 18 and 25A for VOC.
EPA Method 202 for condensable particulate matter (PM).

The final action of the Department will be to issue the permits as proposed in the Technical Evaluation and Preliminary Determination except for the changes noted above.

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

PERMITTEE:
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Suite 400
Laguna Hills, CA 92653

Permit Number: AC53-233851
PSD-FL-206
Expiration Date: April 1, 1998
County: Polk
Latitude/Longitude: 27°52'15"N
81°49'31"W
Project: Two Combustion Turbines

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-212 and 17-4. 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 and specifically described as follows:

Installation of two natural gas/equivalent biogas fired GE LM 6000 (or equivalent) combustion turbines (CT), two heat recovery steam generators, one steam turbine and, being permitted separately, an auxiliary boiler (AC53-233852). The CTs will be initially equipped with either a water injection system or a dry low NO_x system to control nitrogen oxides (NO_x) emission. The water injection system, if installed, will be replaced with dry low NO_x combustion technology by December 31, 1995. Each CT will be equipped with a 100 ft. high, 11 ft. diameter stack that will handle approximately 300,000 actual cubic feet per minute of flue gas at 230°F. The cogeneration facility will be located on Clear Springs Road, Bartow, Polk County, Florida 33830.

The UTM coordinates of this facility are Zone 17, 418.75 kmE and 3083.0 kmN.

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. Application received July 1, 1993
2. DEP July 22, 1993, letter
3. KBN August 5, 1993, letter
4. KBN August 29, 1993, letter
5. Tables 1 and 2, Allowable Emission Rates

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, Florida Statutes. 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), Florida Statutes, 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, Florida Statutes. 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 Florida Administrative Code Rules 17-4.120 and 17-730.300, 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)
(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:

Construction Requirements

1. Water/steam injection systems or dry low NO_X systems shall be installed and operated on each combustion turbine (CT). If a water/steam injection system is initially installed, it will be replaced by dry low NO_X combustion technology.

2. Dry low NO_X combustion technology shall be installed and in operation on the CTs prior to December 31, 1995.

3. A system, accurate to within 5 percent, to continuously monitor the fuel consumption and the ratio of water/steam to fuel being fired shall be installed on each CT.

4. The heat recovery steam generator (HRSG) installed on each CT shall not be equipped with an auxiliary/duct burner.

5. Each CT stack shall be equipped with stack sampling facilities (sample ports, work platforms, access, and electrical power) that meet the specifications given in F.A.C. Rule 17-297.345.

Operation Limitations

6. The CTs shall comply with all requirements of 40 CFR 60, Subpart GG (July, 1993), Standard of Performance for Stationary Gas Turbines, which is adopted by reference in F.A.C. Rule 17-296.800(2)(a).

SPECIFIC CONDITIONS:

7. The facility is allowed to operate continuously, 8760 hours per year.

8. Only natural gas/equivalent biogas fuel shall be used for fuel at this facility.

9. Each CT shall have a maximum heat input based on the lower heating value (LHV) of the fuel of 388 million British thermal units per hour (MMBtu/hr), which is approximately 409,900 cubic feet per hour (CFH) of natural gas, when using water/steam injection to control nitrogen oxides (NO_X) emission.

10. Each CT shall have a maximum heat input (LHV) of 368.3 MMBtu/hr, which is approximately 389,300 CFH of natural gas, when using dry low NO_X technology to control NO_X emissions.

11. The operation of this facility shall not create a nuisance or discharge air pollutants that cause or contribute to objectionable odors.

Emission Limitation

12. Prior to January 1, 1998, the maximum NO_X concentration, 1 hour average, from each CT/HRSG unit shall not exceed 25 parts per million by volume dry corrected to 15 percent oxygen and ISO standard ambient conditions (ppmvd @ 15% O_2 ISO conditions), as determined by the procedures in Specific Conditions No. 18 and 19.

13. After December 31, 1997, the maximum NO_X concentration, 1-hour average, from each CT/HRSG unit shall not exceed 15 ppmvd @ 15% O_2 ISO conditions as determined by the procedure in Specific Conditions Nos. 18 and 19. Should 15 ppmvd NO_X @ 15% O_2 ISO conditions not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard. The permittee shall obtain prior approval from the Department for any air pollution control equipment not addressed in this permit that is needed to meet the NO_X emission standard.

14. The maximum emission rates for particulate matter (PM/PM_{10}), volatile organic compounds (VOC), NO_X, and carbon monoxide (CO) shall not exceed any of the rates listed in Tables 1 and 2, Allowable Emission Rates. Allowable emissions shall be extrapolated between the temperatures listed in the CT manufacturer's curve for emission rates of different air inlet temperatures.

15. Visible emissions shall not exceed 10 percent opacity, 6 minute average.

ORANGE COGENERATION LIMITED PARTNERSHIP
AC53-233851 (PSD-FL-206)
42 MW SIMPLE CYCLE GAS TURBINE

Table 1 - Allowable Emission Rates for each Combustion Turbine

Pollutant[a]	Basis	Allowable Emissions Standards/Limitations ~~ISO~~ Conditions[b] lb/hr	TPY	Maximum Corrected[c] lb/hr	TPY	Basis for Limit
NO_x	25 ppmvd[d] at 15% O_2/ISO	36.3	159.1	38.5	168.5	BACT
CO	30 ppmvd	26.8	117.5	27.8	122.0	BACT
PM/PM_{10}	0.0139 lb/MMBtu	5	21.9	5	21.9	BACT
VOC	10 ppmvd	3.83	16.8	3.98	17.4	BACT

a Pollutant emissions are based on 8,760 hours per year operation firing natural gas or equivalent biogas at 59° F.

b Emissions rates are based on 100% load and at ISO conditions. Pollutant emission rates may vary depending on the air inlet temperature to the combustion turbine (CT) and CT characteristics. Manufacturer's curves for the emission rate corrections to other temperatures at different loads shall be provided to DEP for review 90 days after selection of the CT. Subject to approval by the Department, the manufacturer's curve may be used to establish pollutant emission rates over a range of temperature for the purpose of compliance determination.

c Maximum emission rates not to be exceeded after correction for air inlet temperature to the combustion turbine.

d The NO_x maximum concentration will be lowered to 15 ppmvd at 15% O_2 at ISO conditions by 1/1/98 using appropriate combustion technology improvements. Should this level of control not be achieved when the compliance demonstration stack tests are performed, the permittee must provide the Department with a compliance plan that will ensure compliance within a time period approved by the Department. NO_x emission concentrations are to be corrected to ISO conditions to demonstrate compliance with the NO_x emissions standard.

ORANGE COGENERATION LIMITED PARTNERSHIP
AC53-233851 (PSD-FL-206)
42 MW COMBINED CYCLE GAS TURBINE

Table 2 - Allowable Emission Rates for each Combustion Turbine

Pollutant[a]	Control[e]	Allowable Emissions Standards/Limitations					
			ISO Conditions[b]		Maximum Corrected[c]		Basis for
		Basis	lb/hr	TPY	lb/hr	TPY	Limit
NO_x	WI	25 ppmvd[d] at 15% O_2/ISO	36.3	159.1	38.5	168.5	BACT
	DLN	25 ppmvd at 15% O_2/ISO	34.8	152.3	37.0	161.9	BACT
CO	WI	30 ppmvd	26.8	117.5	27.8	122.0	BACT
	DLN	30 ppmvd	27	118.2	27.8	127.0	BACT
PM/PM_{10}	WI	0.0139 lb/MMBtu	5	21.9	5	21.9	BACT
	DLN	0.0147 lb/MMBtu	5	21.9	5	21.9	BACT
VOC	WI	10 ppmvd	3.83	16.8	3.98	17.4	BACT
	DLN	10 ppmvd	3.86	16.9	3.98	17.4	BACT

[a] Pollutant emissions are based on 8,760 hours per year operation firing natural gas or equivalent biogas at 59° F.

[b] Emissions rates are based on 100% load and at ISO conditions. Pollutant emission rates may vary depending on the air inlet temperature to the combustion turbine (CT) and CT characteristics. Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review 90 days after selection of the CT. Subject to approval by the Department, the manufacturer's curve may be used to establish pollutant emission rates over a range of temperature for the purpose of compliance determination.

[c] Maximum emission rates not to be exceeded after correction for air inlet temperature to the combustion turbine.

[d] The NO_x maximum concentration will be lowered to 15 ppmvd at 15% O_2 at ISO conditions by 1/1/98 using appropriate combustion technology improvements. Should this level of control not be achieved when the compliance demonstration stack tests are performed, the permittee must provide the Department with a compliance plan that will ensure compliance within a time period approved by the Department. NO_x emission concentrations are to be corrected to ISO conditions to demonstrate compliance with the NO_x emissions standard.

[e] Wet injection (WI) and Dry Low-NO_x (DLN) combustors.

SPECIFIC CONDITIONS:

16. The emission rates for sulfur dioxide (SO_2) and sulfuric acid mist (H_2SO_4), listed in the following table, shall be used for inventory purposes only.

Maximum Emission Rates for Each Combustion Turbine
for inventory purposes or PSD tracking

Pollutant	Combustion Turbine Water Injection		Combustion Turbine Dry Low NO_x Combustion	
	lb/hr	TPY	lb/hr	TPY
SO_2	1.17	5.1	1.11	4.87
H_2SO_4	0.09	0.39	0.085	0.37

17. Manufacturer's curves for the emission rate correction to other temperatures at different loads shall be provided to DEP for review 90 days after selection of the CT. Subject to approval by the Department, the manufacturer's curve may be used to establish pollutant emission rates over a range of inlet air temperatures for the purpose of compliance determination. The maximum allowable emissions at different air inlet temperatures shall be based on the CT manufacturer's curve but shall not exceed the maximum rates listed in Tables 1 and 2, Allowable Emission Rates.

Compliance Determination

18. Testing of emissions shall be conducted with the source operating at capacity. Capacity is defined as 90-100% of rated capacity at the test ambient air temperature. If it is impracticable to test at capacity, then sources may be tested at less than capacity; in this case subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department. Compliance with the visible emissions, NO_x, SO_2, CO, PM/PM_{10}, and VOC emission standards shall be determined within 60 days of achieving maximum production but not later than 180 days after initial firing of each CT (40 CFR 60.8). Compliance with the visible emission, NO_x, and SO_2 standards shall be determined annually thereafter. The tests shall be conducted initially when the CTs are using water/steam system and again when dry low-NO_x technology is employed. Tests shall be conducted on both natural gas and biogas fuels.

SPECIFIC CONDITIONS:

19. Compliance shall be determined by the following test methods listed in 40 CFR 60, Appendix A (July, 1993).

EPA Method	Pollutant
5, 17*, or 201A and 202	PM/PM_{10}
9	Visible Emissions
10	CO
20	NO_X and SO_2
18, 25, or 25A	VOC

Other test methods may be used for compliance testing after prior Department approval.

*Stack flue gas temperature must be less than 320°F to use Method 17.

Administrative Requirement

20. Prior to January 1, 1998, the permittee shall provide a report showing how the allowable NO_X emissions of 15 ppmvd @ 15% O_2 ISO conditions is achieved by the CTs.

21. The permittee shall provide the Southwest District office with the following notifications required by 40 CFR 60.7:

- When construction commenced within 30 days of commencement of construction
- Anticipated date of initial starting 30 to 60 days prior to startup
- Actual date of startup up within 15 days after the starting
- Notification of the date of the compliance tests not less than 30 days prior to the test

22. Pursuant to F.A.C. Rule 17-210.300(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: sulfur content and the lower heating value of the fuel being fired, fuel usage, hours of operation, and air emissions. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

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

SPECIFIC CONDITIONS:

24. An application for an operation permit must be submitted to the Southwest 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).

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Virginia B. Wetherell, Secretary

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

PERMITTEE:
Orange Cogeneration Limited Partnership
23046 Avenida De La Carlota
Suite 400
Laguna Hills, CA 92653

Permit Number: AC53-233852
PSD-FL-206
Expiration Date: April 1, 1996
Latitude/Longitude: 27°52'15"N
81°49'31"W
Project: Auxiliary Boiler
County: Polk

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-212 and 17-4. 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 and specifically described as follows:

Installation of a 100 million British thermal unit per hour (MMBtu/hr) natural gas/equivalent biogas fired tube boiler equipped with a 65 foot high, 3.67 foot diameter stack designed to produce approximately 83,000 pounds per hour of saturated steam at 205 pounds per square inch gauge (psig) pressure. The heat input is based on the High Heating Value (HHV) of the fuel. The auxiliary boiler will be located on Clear Springs Road, Bartow, Polk County, Florida 33830.

The UTM coordinates of this facility are Zone 17, 418.75 kmE and 3083.0 kmN.

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. Application received July 1, 1993
2. DEP July 22, 1993, letter
3. KBN August 5, 1993, letter

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, Florida Statutes. 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), Florida Statutes, 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, Florida Statutes. 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 Florida Administrative Code Rules 17-4.120 and 17-730.300, 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)
(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:

Construction Requirements

1. The auxiliary boiler shall be equipped with low-NO_x burners.

2. The boiler stack shall be equipped with stack sampling facilities (sample ports, work platforms, access, electrical power) that meet the specifications given in F.A.C. Rule 17-297.345.

Operation Limitations

3. The auxiliary boiler shall comply with all applicable requirements of 40 CFR 60, Subpart Dc.

4. The boiler is allowed to operate continuously, 8760 hours per year.

5. Only natural gas/equivalent biogas fuel shall be burned in this boiler.

6. The maximum heat input to the boiler based on the high heating value (HHV) of the fuel shall not exceed 100 MMBtu/hr which is the heat content of approximately 105,700 cubic feet of natural gas per hour.

7. The maximum allowable sulfur content (total) of the natural gas/biogas burned in the boiler shall not exceed 1 grain per 100 cubic feet (1 gr/100 CF) of gas.

SPECIFIC CONDITIONS:

8. The operation of this boiler shall not emit air pollutants that cause or contribute to objectionable odors.

9. Visible emissions shall not exceed 15 percent opacity.

10. Emissions from the boiler shall not exceed any of the following limits:

Pollutant	lbs/MMBtu	lbs/hr	TPY
NO_X	0.13	13.0	56.9
CO	0.10	10.0	43.8
VOC	0.04	4.3	18.8

11. Sulfur dioxide (SO_2) emissions from the boiler shall not exceed 0.003 lbs/MMBtu, 0.30 lbs/hr, and 1.3 TPY. An analysis of the fuel showing the sulfur content does not exceed 1 grain of total sulfur per 100 cubic feet of gas will be accepted as proof of compliance with the sulfur dioxide emission limit. Total sulfur content of the gas shall be determined by test method ASTM D 1072-80 (40 CFR 60.17 (July, 1993)).

12. Particulate matter (PM/PM_{10}) emissions from the boiler shall not exceed 0.01 lbs/MMBtu, 1.0 lbs/hr, and 4.4 TPY. No PM/PM_{10} stack test that is required if the visible emissions are less than 15 percent opacity.

Testing Requirements

13. Testing of emissions shall be conducted with the source operating at capacity. Capacity is defined as 90-100% of rated capacity. If it is impracticable to test at capacity, then sources may be tested at less than capacity; in this case subsequent source operation is limited to 110% of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department. Compliance with the visible emissions, NO_X, CO, and VOC emission standards shall be determined within 60 days of achieving maximum production but not later than 180 days after initial firing of the boiler. Compliance with the visible emissions and NO_X standards shall be determined annually thereafter.

SPECIFIC CONDITIONS:

14. Compliance shall be determined by the following test methods listed in 40 CFR 60, Appendix A (July, 1993).

EPA Method	Pollutant
9	Visible Emissions
10	CO
7E	NO_x
18, 25, or 25A	VOC

Other test methods may be used for compliance testing after prior Department approval.

15. The permittee shall provide the Southwest District office with the following notifications required by 40 CFR 60.7:

- When construction commenced within 30 days of commencement of construction.
- Anticipated date of initial startup, 30 to 60 days prior to startup.
- Actual date of startup within 15 days after the startup.
- Notification of the date of the compliance tests not less than 30 days prior to the tests.

16. Pursuant to F.A.C. Rule 17-210.300(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: sulfur content and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emission limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

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

18. An application for an operation permit must be submitted to the Southwest 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

SPECIFIC CONDITIONS:

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).

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

David A. Struhs FOR

Virginia B. Wetherell, Secretary

Best Available Control Technology (BACT) Determination
Orange Cogeneration Limited Partnership
Polk County
AC53-233851, AC53-233852, PSD-FL-206

The applicant proposes to construct a 103 gross megawatt (MW) natural gas/equivalent biogas fired cogeneration facility in Bartow, Polk County, Florida. Major components of the cogeneration facility are: two combustion turbines (CT), each with a heat recovery steam generator (HRSG), an auxiliary boiler, steam turbine generator, and associated equipment. Both CTs will consume up to 776 million British thermal units per hour (MMBtu/hr) of gas fuel based on the lower heating value (LHV) of the fuel and produce 78 MW of electricity. The HRSGs, which do not use supplemental fuel, produce approximately 100,000 lbs/hr of steam that can generate 25 MW of electricity. The fire-tube auxiliary boiler consumes 100 MMBtu/hr of gas fuel and produces approximately 83,000 lbs/hr of steam.

The following table lists the estimated maximum emissions from the cogeneration facility.

	Two CTs		Auxiliary Boiler	
Pollutant	lbs/hr	TPY	lbs/hr	TPY
Sulfur dioxide (SO_2)	2.34	10.3	0.3	1.3
Particulate Matter (PM/PM_{10})	10	43.8	1.0	4.4
Nitrogen Oxide (NO_X)	77.0	336.9	13.0	56.9
Carbon Monoxide (CO)	55.6	243.9	10.0	43.8
Volatile Organic Compounds (VOC)	7.96	34.9	4.3	18.8
Sulfuric Acid Mist	0.18	0.79	0.023	0.1

The cogeneration facility requires a BACT determination for NO_X, CO, PM, and VOC. In addition, the auxiliary boiler requires a BACT determination for SO_2.

Date of Receipt of a BACT Application

July 1, 1993

BACT Requested by the Applicant

Pollutant	Proposed Limit	Air Pollution Control
Combustion Turbine		
PM	0.01 gr/scf*	Clean Fuel (gas)
NO_X	25 ppmvd @ 15%**	Wet Injection (WI) or
	15 ppmvd @ 15%**	Dry Low-NO_X Combustors

CO	30 ppmvd	Combustion Controls
VOC	10 ppmvd	Combustion Controls

Auxiliary Boiler

PM	0.01 lbs/MMBtu	Clean Fuel (gas)
NO_X	0.13 lbs/MMBtu	Low-NO_X burners
SO_2	1 grain/100CF natural gas	Clean Fuel (natural gas)
CO	0.10 lbs/MMBtu	Combustion Control
VOC	0.043 lbs/MMBtu	Combustion Control

*grains per standard cubic foot
**parts per million by volume dry at 15 percent oxygen and ISO conditions
Applicant is committed to meeting 15 ppmvd @ 15% O_2 and ISO conditions with dry low-NO_X combustors after December 31, 1997.

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-212, 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, then 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 cogeneration facilities 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 matter). Controlled generally by good 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.

Although all of the pollutants addressed in the BACT analysis may be subjected 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, 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.

BACT Pollutant Analysis for Combustion Turbines (CT)

Nitrogen Oxides (NO_X)

The emissions of nitrogen oxides represent a significant proportion of the total emissions generated by this project, and need to be controlled if deemed appropriate. As such, the applicant presented an extensive analysis of the different available technologies for NO_X control. The control technologies evaluated were selective catalytic reduction (SCR), wet injection (WI), dry low-NO_X combustor, NO_XOUT process, thermal DeNO_X, and selective noncatalytic reduction (SNCR).

NO_XOUT (urea with catalyst), thermal DeNO_X (ammonia with catalyst), and selective noncatalytic reduction system (ammonia without catalyst) to reduce NO_X emissions from the CT were not feasible because of process constraints (flue gas temperature too low and oxygen content too high).

SCR, dry low-NO_X combustor technology, and wet injection controls were considered feasible.

The applicant has stated that BACT for nitrogen oxides will be met initially by using water/steam injection or advanced combustor design to limit emissions to 25 ppmvd 15% O_2 and ISO conditions when burning natural gas/equivalent biogas. After December 31, 1995, dry low NO_X combustion will be used to meet the same NO_X emission limit of 25

ppmvd @ 15% O_2 and ISO conditions. After December 31, 1997, a limit of 15 ppmvd @ 15% O_2 and ISO conditions will be met. Should 15 ppmvd NO_X @ 15% O_2 and ISO conditions not be achieved during the initial compliance tests, the permittee will provide the Department with a plan and schedule to meet this standard.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NO_X 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 SCR system.

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

The effect of exhaust gas temperature on NO_X reduction depends on the specific catalyst formulation and reactor design. Generally, SCR units can be designed to achieve effective NO_X control over a 100-300°F operating window within the bounds of 450-800°F, although recently developed zeolite-based catalysts are claimed to be capable of operating at temperatures as high as 950°.

Most commercial SCR systems operate over a temperature range of about 600-750°F. At levels above and below this window, the specific catalyst formulation will not be effective and NO_X reduction will decrease. Operating at high temperatures can permanently damage the catalyst through sintering of surfaces.

Increased water vapor content in the exhaust gas (as would result from water or steam injection in the gas turbine combustor) can shift the operating temperature window of the SCR reactor to slightly higher levels.

Although technically feasible, the applicant has rejected using SCR on the combined cycle because of economic, energy, and environmental impacts. The applicant has identified the following limitations:

a) Reduced power output.
b) Emissions of unreacted ammonia (slip).
c) Disposal of hazardous waste generated (spent catalyst).
d) Ammonium bisulfate and ammonium sulfate particulate emissions (ammonium salts) due to the reaction of NH_3 with SO_3 present in the exhaust gases.

e) The energy impacts of SCR will reduce potential electrical power generation by 0.8 percent.
f) Incremental cost effectiveness for the application of SCR technology to the Orange Cogeneration L.P. project was considered to be $7,970 when emissions are at 25 ppm and $23,510 when emissions are at 15 ppm. Since SCR has been determined to be BACT for gas turbines, the EPA has clearly stated that there must be unique circumstances to consider the rejection of such control on the basis of eccnomics.

In a 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."

The cost associated with controlling NO_X emissions must take into account the potential operating problems that can occur with using SCR.

A concern associated with the use of SCR on combustion turbines 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 formed has a tendency to plug the tubes of the heat recovery steam generator leading to operational problems. As this is the case, SCR has been judged to be technically infeasible in some previous BACT determinations. This salt also increases particulate matter (PM/PM_{10}) emissions.

For natural gas/equivalent biogas firing operation, NO_X emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater ammonia injection ratio. 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 with NO_X emission limits ranging from 11.7 to 25 ppmvd depending on the efficiency of control established.

The applicant has indicated that the total levelized annual operating cost to install SCR on two CTs for this project at 100 percent capacity factor and burning natural gas/equivalent biogas is $1,648,000. Taking into consideration the total annual cost, a cost/benefit analysis of using SCR can now be developed.

Initially, NO_X emissions will be 25 ppmvd @ 15% O_2 and ISO conditions. Emissions will be 318 TPY NO_X with WI. When dry-low NO_X controls are installed, NO_X emissions will be 305 TPY. After the combustion turbines meet the NO_X emissions standard of 15 ppmvd @ 15% O_2 and ISO conditions, NO_X emissions will be 191 TPY. A SCR would reduce the NO_X emissions by 207 TPY during the first 2 years of operation when the CTs emit 25 ppmvd @ 15% O_2 and ISO conditions. Thereafter, when dry-low NO_X controls are used, a SCR would reduce NO_X emissions by 120 TPY. When these reductions are taken into consideration, the total cost with SCR is $21,900 per ton of NO_X removed. This calculated cost is higher than has previously been approved as BACT.

A review of the latest Department BACT determinations show limits of 15 ppmvd (natural gas) using low-NO_X burn technology for gas turbines. Most combustion turbine manufacturers are currently developing programs using both steam/water injection and dry low NO_X combustor to achieve NO_X emission control level of 9 ppm when firing natural gas. Therefore, this technology will likely be available by 1998.

BACT Determination for NO_X for the CT's by Department

NO_X Control

The information that the applicant presented and Department calculation indicate that the cost per ton of controlling NO_X for this turbine [$21,900 per ton] is high compared to other BACT determinations which require SCR. Based on the information presented by the applicant, the Department believes that the use of SCR for NO_X control is not justifiable as BACT at this time.

A review of the permitting activities for combustion turbine 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, and various capacity factors). Although, the cost and other concerns expressed by the applicant are valid, the Department, in this case, is willing to accept water/steam injection and low NO_X burner design as BACT for this project for a limited time (up to 12/31/97).

It is the Department's understanding that combustion turbine manufacturers are developing programs using either steam/water injection or dry low NO_X combustor technology to achieve a NO_X emission control level of 9 ppm when firing natural gas.

Based on this, the Department has determined to revise and lower the allowable BACT limit for this project to 15 ppmvd at 15% O_2 no later than 1/1/98.

Carbon Monoxide (CO)

CO emissions are caused by incomplete combustion of the fossil fuel. The applicant investigated the use of combustion control and catalytic oxidation to control CO emission. With combustion control, CO emissions would be 30 ppmvd (236 TPY). With catalytic oxidation, CO emissions would be 10 ppmvd (78 TPY). The annualized cost of the catalyst system is $834,700 or $5,280 per ton of CO removed.

BACT Determination for CO for the CT's by Department

Because catalytic oxidation would increase operation cost by $5,280 per ton of CO removed, and have no significant reduction in ambient air quality, the Department accepts an emission limit for CO of 30 ppmvd obtained through combustion control as BACT for these CTs.

Volatile Organic Compounds (VOC)

VOC emissions are caused by incomplete combustion of fossil fuel. The applicant proposes to meet an emission limit of 10 ppmvd through the use of clean fuel (natural gas) and combustion controls. This is similar to the BACT applied to other sources.

BACT Determinations for VOC for the CTs by Department

The Department accepts an emission limit for VOC of 10 ppmvd obtained through the use of clean fuel (natural gas) and combustion control as BACT for these CTs.

Particulate Matter (PM/PM_{10})

PM emissions are caused by incomplete combustion and traces of solids in the fuel. Proper combustion of clean fuel will emit only trace amounts of PM/PM_{10}. Each proposed CT will emit 5 lbs/hr of PM/PM_{10} or about 0.01 grains per standard cubic foot (gr/dscf). This is similar to the PM/PM_{10} emissions that can be met with the best air pollution control device, a baghouse.

BACT Determination for PM/PM_{10} for the CTs by Department

The Department accepts an emission limit for PM/PM_{10} of 5 lbs/hr and 10 percent opacity as BACT for each CT.

BACT Pollutant Analysis for the Auxiliary Boiler

Nitrogen Oxides (NO_X)

Nitrogen oxide emissions from boilers can be controlled by selective catalytic reduction (SCR), flue gas recirculation (FGR), and low-NO_X combustors.

The applicant proposes to meet a NO_X emission limit of 0.13 lbs/MMBtu through the use of low-NO_X combustors. This emission limit is below the new source performance standard for large boilers. The cost of using SCR or FGR would exceed $5,000 per ton NO_X removed.

BACT Determined for NO_X for the Boiler by Department

The Department accepts an emission limit for NO_X of 0.13 lbs/MMBtu as BACT for this boiler.

Particulate Matter (PM/PM_{10}), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC)

PM/PM_{10}, CO and VOC are the products of incomplete combustion of fossil fuel. The applicant proposes to meet emission limits of 0.01 lbs PM/MMBtu, 0.10 lbs CO/MMBtu, 0.04 lbs VOC/MMBtu through the use of clean fuel (natural gas/equivalent biogas) and combustion control. Visible emissions shall not exceed 15 percent opacity.

BACT Determination for PM, CO, and VOC for the Boiler by Department

The Department accepts the use of clean fuel (natural gas/equivalent biogas) and combustion controls to meet the proposed emission limits for PM/PM_{10}, CO, and VOC as BACT for this boiler.

Sulfur Dioxide (SO_2)

Sulfur dioxide emissions are caused by the oxidation of sulfur in the fuel. Natural gas/equivalent biogas contains only trace amounts of sulfur - 1 grain per 100 cubic feet (gr/100 CF). This will result in an estimated sulfur dioxide emission of 0.30 lbs/hr. Cleaner fuel is not available and add on controls for SO_2 are not justified at this low emission rate.

BACT Determination for SO_2 for the Boiler by Department

Natural gas/equivalent biogas fuel containing a maximum of 1 gr/100 CF is accepted as BACT for SO_2 control for this boiler.

Summary of the BACT Determination by Department

Pollutant	Emission Limits	EPA Test Methods
COMBUSTION TURBINE		
NOx	25 ppmvd @ 15% O_2 ISO conditions until Dec. 31, 1997 15 ppmvd @ 15% O_2 ISO conditions after Dec. 31, 1997	20
CO	30 ppmvd	10
VOC	10 ppmvd	18, 25 or 25A
PM/PM_{10}	5 lbs/hr	5, 17*, or 201A and 202
AUXILIARY BOILER		
NO_x	0.13 lbs/MMBtu	7E
PM/PM_{10}	0.01 lbs/MMBtu	5, 17*, or 201A and 202
CO	0.10 lbs/MMBtu	10
VOC	0.04 lbs/MMBtu	18, 25 or 25A
SO_2	1 gr sulfur/100 CF gas	fuel analysis
Visible Emissions	15 percent opacity	9

*Stack flue gas temperature must be less than 320°F.

Details of the Analysis May be Obtained by Contacting:
Doug Outlaw, P.E., BACT Coordinator
Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

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

Dec 29 1993
Date

Approved by:

Virginia B. Wetherell, Secretary
Dept. of Environmental Protection

29 Dec 1993
Date

Florida Department of

Memorandum

Environmental Protection

TO: Virginia B. Wetherell

for FROM: Howard L. Rhodes

DATE: December 29, 1993

SUBJECT: Approval of a Construction Permit
Orange Cogeneration Limited Partnership

Attached for your approval and signature are air construction permits and a Best Available Control Technology for a 103 megawatt cogeneration facility to be built for Orange Cogeneration Limited Partnership in Bartow, Polk County, Florida.

The public did not object to the issuance of these permits.

I recommend your approval and signature.

HLR/WH/bjb

Attachment