



Florida Department of
Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

June 27, 1994

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Kennard F. Kosky, P.E.
President
KBN Engineering and Applied Sciences, Inc.
1034 NW 57th Street
Gainesville, Florida 32605

Dear Mr. Kosky:

RE: Orange Cogeneration Limited Partnership
Permit No. AC 53-233851, PSD-FL-206

The Bureau of Air Regulation received your June 22, 1994, request for the above referenced project. The changes requested in your letter will necessitate an amendment to your permit and, pursuant to Rule 17-4.050(4)(o), F.A.C., will require a \$250 fee. As soon as the fee is received we will begin processing your request. If you have any questions, please call Patty Adams at (904) 488-1344.

Sincerely,

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

CHF/pa



June 22, 1994

RECEIVED

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

JUN 23 1994

Bureau of
Air Regulation

Re: Orange Cogeneration Limited Partnership
Permit Application AC 53-233851 (PSD-FL-206)

Dear Clair:

This letter is to inform you of recent updated information obtained for this project and to request changes to the Specific Conditions of the construction permit. The proposed changes are incorporated in a marked-up copy of the construction permit, which is included as an attachment to this letter. The updated information and requested changes are as follows:

1. Updated information to inform Florida Department of Environmental Protection (FDEP) that the combustion turbines will be equipped with a staged combustion technology dry low nitrogen oxides (NO_x) system only (a water injection system will not be installed prior to the dry low NO_x system).
2. Due to the expected date of available data from the manufacturer, change the date that the manufacturer's curves for the emission rate correction to other temperatures at different loads are due to FDEP from September 1, 1994 to January 1, 1995.
3. Addition of a Specific Condition to address meeting NO_x monitoring requirements using, as a substitute, the requirements of 40 CFR 75, Appendices A and B, provided the minimum criteria of 40 CFR 60 are met.
4. Clarification for determining compliance testing, particularly for NO_x emissions.

If you have any questions concerning this correspondence or would like to discuss the proposed revisions to the permit, please call me as soon as possible.

Sincerely,

Kennard F. Kosky, P.E.
President

KFK/lcb

cc: Thomas Donovan, Orange Cogeneration Limited Partnership
William Malenius, Ark Energy, Inc.
Kelly Spencer, Central and South West Services, Inc.
Willard Hanks, FDEP
File (2)

13019A1/14

KBN ENGINEERING AND APPLIED SCIENCES, INC.

1034 Northwest 57th Street
Gainesville, Florida 32605
904-331-9000
FAX 904-332-4189

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

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

6821 Southpoint Drive North,
Suite 216
Jacksonville, Florida 32216
904-296-9663 FAX 904-296-0146

One Church Street, Suite 801
Rockville, Maryland 20850
301-738-1100
FAX 301-738-1105



Lawton Chiles
Governor

Florida Department of Environmental Protection

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

Virginia B. Wetherell
Secretary

March 29, 1994

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Kennard F. Kosky, P.E.
KBN Engineering and Applied Sciences, Inc.
1034 Northwest 57th Street
Gainesville, Florida 32605

Dear Mr. Kosky:

Re: Orange Cogeneration L.P.
AC 53-233851/Specific Condition No. 17

The following guidance is provided to clarify the issues raised in your March 11, 1994, letter on the referenced facility. The Department replaced the original tables in 2-2, 2-3, and 2-4 in the application with the October 28, 1993, revised tables. Until new combustion turbine manufacturer's curves are submitted to and approved by the Department, the maximum allowable emissions of the turbines will be based on the October 28, 1993, tables. Note that the combustion turbine air inlet temperature will be substituted for the ambient temperature in these tables to extrapolate the maximum allowable air pollutant emissions.

Please write to me if you need additional clarification on this matter.

Sincerely,

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

CHF/WH/bjb

cc: Bill Thomas, SWD
Linda Novak, PCESD
Thomas Donovan, Orange Cogen. L.P.



March 11, 1994

RECEIVED

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

MAR 14 1994

Bureau of
Air Regulation

Subject: Orange Cogeneration Limited Partnership
Permit Application AC 53-233851 (PSD-FL-206)
Specific Condition No. 17

Dear Clair:

This correspondence presents our understanding of the Department's proposed revision to Specific Condition No. 17 of the referenced permit (see Department's letter of February 18, 1994 from Mr. Howard L. Rhodes, Director, Division of Air Resources Management, to Mr. Thomas F. Donovan, Orange Cogeneration Limited Partnership). Until new curves are approved by the Department or the combustion turbines meet the NO_x emission standards of 15 ppmvd corrected to 15 percent O₂ and ISO conditions (whichever occurs first), the stack, operating, and emission data for the proposed turbines presented in Revision 1 to Tables 2-2, 2-3, and 2-4 will be used (see attached tables). Please note that the ambient temperatures referenced in these tables refer to the air inlet temperature to the turbine. These tables, which were included in KBN's correspondence to the Department on October 29, 1993, included performance data for the turbines operating at a controlled air inlet temperature of 47°F and are the basis of the emission limits given in Tables 1 and 2 of the construction permit.

It is our understanding that KBN's correspondence of October 29, 1993 and October 28, 1993 (waiving time requirements) are included as part of the permit application (listed as attachments).

If you have any questions concerning this correspondence or this information does not agree with the proposed revisions to the permit, please call me as soon as possible.

Sincerely,

Kennard F. Kosky
Kennard F. Kosky, P.E.
President

cc: Mr. William Malenius, Ark Energy, Inc.
Mr. Thomas Donovan, Ark Energy, Inc.
Mr Ward Marshall, Central and South West Services, Inc.
Mr. Willard Hanks, FDEP
E. Thomas SW Dist
K. Nowak, PCESD

13019A1/11

KBN ENGINEERING AND APPLIED SCIENCES, INC.

1034 Northwest 57th Street
Gainesville, Florida 32605
904-331-9000
FAX 904-332-4189

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

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FAX 301-738-1105

Revision 1

Table 2-2. Stack, Operating, and Emission Data for the Proposed Combustion Turbine with Water Injection--Simple 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
<u>Stack Data (ft)</u>						
Height	60	60	60	60	60	60
Diameter	9.0	9.0	9.0	9.0	9.0	9.0
<u>Operating Data</u>						
Temperature (°F)	754	804	831	830	842	859
Velocity (ft/sec)	142.9	149.7	151.6	145.4	132.2	119.6
<u>Maximum Hourly Emission Data (lb/hr) Per Unit^b</u>						
SO ₂	1.07	1.13	1.17	1.09	0.95	0.82
PM	5.0	5.0	5.0	5.0	5.0	5.0
NO _x ^c	35.7	37.8	38.5	36.3	31.6	27.3
CO	28.5	28.4	27.8	26.8	24.1	21.3
VOC	4.07	4.05	3.98	3.83	3.44	3.04
Sulfuric Acid Mist	0.082	0.087	0.090	0.083	0.072	0.063
<u>Annual Potential Emission Data (TPY) Per Unit^b</u>						
SO ₂	NA	NA	5.1	4.76	NA	NA
PM	NA	NA	21.9	21.9	NA	NA
NO _x ^c	NA	NA	168.5	159.1	NA	NA
CO	NA	NA	122.0	117.5	NA	NA
VOC	NA	NA	17.4	16.8	NA	NA
Sulfuric Acid Mist	NA	NA	0.39	0.36	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-1 through A-4 provide information on the simple cycle operation with wet injection.

^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 O₂ and dry conditions by volume.

Revision 1

Table 2-3. Stack, Operating, and Emission Data for the Proposed Combustion Turbine with Water Injection--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
<u>Stack Data (ft)</u>						
Height	100	100	100	100	100	100
Diameter	8.5	8.5	11.0	8.5	8.5	8.5
<u>Operating Data</u>						
Temperature (°F)	215	215	230	215	215	215
Velocity (ft/sec)	89.1	89.6	54.2	85.3	76.8	68.6
<u>Maximum Hourly Emission Data (lb/hr)^b/Per Unit</u>						
SO ₂	1.07	1.13	1.17	1.09	0.95	0.82
PM	5.0	5.0	5.0	5.0	5.0	5.0
NO _x ^c	35.7	37.8	38.5	36.3	31.6	27.3
CO	28.5	28.4	27.8	26.8	24.1	21.3
VOC	4.07	4.05	3.98	3.83	3.44	3.04
Sulfuric Acid Mist	0.082	0.087	0.090	0.083	0.072	0.063
<u>Annual Potential Emission Data (TPY)^b/Per Unit</u>						
SO ₂	NA	NA	5.1	4.76	NA	NA
PM	NA	NA	21.9	21.9	NA	NA
NO _x ^c	NA	NA	168.5	159.1	NA	NA
CO	NA	NA	122.0	117.5	NA	NA
VOC	NA	NA	17.4	16.8	NA	NA
Sulfuric Acid Mist	NA	NA	0.39	0.36	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-5 through A-8 provide information on combined cycle operation with wet injection.

^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 O₂ 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
<u>Stack Data (ft)</u>						
Height	100	100	100	100	100	100
Diameter	8.5	8.5	11.0	8.5	8.5	8.5
<u>Operating Data</u>						
Temperature (°F)	215	215	230	215	215	215
Velocity (ft/sec)	86.9	86.6	52.4	82.9	75.4	67.6
<u>Maximum Hourly Emission Data (lb/hr) Per Unit^b</u>						
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
<u>Annual Potential Emission Data (TPY) Per Unit^b</u>						
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 O₂ and dry conditions by volume.