

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NOTICE OF FINAL PERMIT AMENDMENT

In the Matter of an  
Application for Permit Amendment

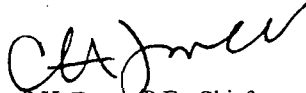
Auburndale Power Partners  
12500 Fair Lakes Circle Suite 200  
Fairfax, Virginia 22033-3804

DEF File No. 1050221-003 AC  
AC53-208321, PSD-FL-185  
Auburndale Cogeneration Facility  
Polk County

Enclosed is a letter that amends Permit Number AC53-208321 (PSD-FL-185). This letter extends the NO<sub>x</sub> compliance date on the 104 MW Westinghouse 501D combustion turbine while operating on gas by one year. This permit amendment is 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, F.S., 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 Legal Office; 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 (thirty) days from the date this Notice is filed with the Clerk of the Department.

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 NOTICE OF FINAL PERMIT AMENDMENT (including the FINAL permit amendment) was sent by certified mail (\*) and copies were mailed by U.S. Mail before the close of business on 5-22-97 to the person(s) listed:

Mr. Bruce L. Franco, P.E., Auburndale Power Partners \*  
Mr. Tom Davis, P.E., ECT  
Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
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.

**RECEIVED**  
MAY 27 1997  
Department of Environmental Protection  
BY SOUTHWEST DISTRICT

  
(Clerk) 5-22-97  
(Date)

## FINAL DETERMINATION

Auburndale Power Partners

Modification of Permit No. AC53-208321 (PSD-FL-185)  
Auburndale Cogeneration Facility

An Intent to Issue an air construction permit modification for Auburndale Power Partners Cogeneration Facility located in Auburndale, Polk County, Florida was distributed on March 5, 1997. The Notice of Intent was published in the Lakeland Ledger on March 12, 1997. Copies of the modification were available for public inspection at the Department offices in Tallahassee and Tampa. Comments from the applicant were submitted in response to the public notice. The applicant requested additional language which lists acceptable Relative Accuracy Test Audit (RATA) test methods. This request is acceptable and the list was included in specific condition No.8.

The final action of the Department will be to issue the permit modification as proposed in the public notice, but with the additional RATA test method language included.



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

May 19, 1997

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Bruce L. Franco, P.E.  
Executive Director  
Auburndale Power Partners, L.P.  
12500 Fair Lakes Circle, Suite 200  
Fairfax, Virginia 22030

Re: Permit Modification AC53-208321 (PSD-FL-185)  
DEP File Number: 1050221-003  
Extension of NO<sub>x</sub> Compliance Date, Compliance by CEMS for NO<sub>x</sub>, and  
Removal of ISO Correction

Dear Mr. Franco:

The Department has reviewed the request concerning the above referenced items relating to the gas turbine located at the Auburndale facility. This request is acceptable to the Department and the permit is hereby modified as follows:

### Specific Condition 1, Table 1

Amended per attached tables

### Specific Condition No. 8:

#### FROM:

Method 20      Determination of the Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from  
Stationary Gas Turbines.

#### TO:

Method 20      Determination of the Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from  
Stationary Gas Turbines (for compliance with 40 CFR 60.335 only and only for the  
initial test, no annual test or test prior to renewal of operation permits is required).

Pursuant to 40 CFR 75 Appendix A, Section 6.5.10, the following methods from 40 CFR Part 60 Appendix A or their approved alternatives are acceptable reference methods for performing relative accuracy test audits: Method 1 or 1A for siting; Method 2 (or 2A, 2C, or 2D) for velocity; Methods 3, 3A, or 3B for O<sub>2</sub> or CO<sub>2</sub>; Method 4 for moisture; Methods 6, 6A, or 6C for SO<sub>2</sub>; Methods 7, 7A, 7C, 7D, 7E for NO<sub>x</sub>, excluding the exception in Section 5.1.2 of Method 7E.

Specific Condition 13:

FROM:

During performance tests, to determine compliance with the proposed NO<sub>x</sub> standard, measured NO<sub>x</sub> emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

TO:

During performance tests, to determine compliance with the NSPS Subpart GG NO<sub>x</sub> standard, measured NO<sub>x</sub> emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

Specific Condition 17:

FROM:

A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. While steam injection is being utilized for NO<sub>x</sub> control, the steam to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

TO:

A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. While water injection is being utilized for NO<sub>x</sub> control, the water (all phases) to fuel ratio shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG. The NO<sub>x</sub> CEMS will be used in lieu of the water/fuel monitoring system and fuel bound nitrogen (FBN) monitoring, which are required in 40 CFR 60.334. The NO<sub>x</sub> CEMS shall be used to report excess emissions during periods of startup, shutdown, and malfunction in lieu of FBN monitoring and the water/fuel monitoring system described in 40 CFR 60.334(c)(1).

Specific Condition 18:

FROM:

Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel deliver receipts. The records of fuel oil usage shall be kept by the company for a two-year period or regulatory agency inspection purposes. For sulfur dioxide, periods of excess emissions shall be reported if the fuel being fired in the gas turbine exceeds 0.05 percent sulfur by weight.

TO:

Sulfur and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel deliver receipts. The records of fuel oil usage shall be kept by the company for a two-year period or regulatory agency inspection purposes. For sulfur dioxide, periods of excess emissions shall be reported if the fuel being fired in the gas turbine exceeds 0.05 percent sulfur by weight.

Specific Condition 27:

FROM:

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, nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District Office by March 1 of each calendar year.

TO:

Pursuant to F.A.C. Rule 62-210.370(3), **Annual Operating Report for Air Pollution Emitting Facility**, 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 and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District Office by March 1 of each calendar year.

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

FROM:

Auburndale Power Partners - AC53-208321 (PSD-FL-185)

TABLE 1 - ALLOWABLE EMISSION RATES

Pollutant	Fuel <sup>A</sup>	Allowable Emission Standard/Limitation	Basis
NO <sub>x</sub>	Gas	15 ppmvd @ 15% O <sub>2</sub> & ISO (78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> & ISO (131.0 lbs/hr; 573.8 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	7.5 lbs/hr; 32.9 TPY	BACT
	Oil	14 lbs/hr; 61.3 TPY	BACT
Opacity	Gas	10% opacity <sup>D</sup>	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl.
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl.
As	Oil	1.61 x 10 <sup>-4</sup> lb/MMBtu (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> lb/MMBtu (0.04 lb/hr; 0.17 TPY)	Appl.
Be	Oil	2.0 x 10 <sup>-6</sup> lb/MMBtu (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> lb/MMBtu (0.13 lb/hr; 0.510 TPY)	BACT

A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil.  
Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.

B) The NO<sub>x</sub> maximum limit will be lowered to 15 ppm by 9/30/97 (about 18 months after natural gas is first fired) using appropriate combustion technology improvements or SCR.

C) 21 ppmvd at minimum load.  
15 ppmvd at base load.

D) 10% opacity at full load conditions.

TO:

Auburndale Power Partners - AC53-208321 (PSD-FL-185)

TABLE 1 - ALLOWABLE EMISSION RATES

Pollutant	Fuel <sup>A</sup>	Allowable Emission Standard/Limitation	Basis
NOx	Gas	15 ppmvd @ 15% O <sub>2</sub> 24 hour Block Ave (78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> 24 hour Block Ave (131.0 lbs/hr; 573.8 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> 24 hour Block Ave (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	7.5 lbs/hr; 32.9 TPY	BACT
	Oil	14 lbs/hr; 61.3 TPY	BACT
Opacity	Gas	10% opacity <sup>D</sup>	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl.
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl.
As	Oil	1.61 x 10 <sup>-4</sup> lb/MMBtu (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> lb/MMBtu (0.04 lb/hr; 0.17 TPY)	Appl.
Be	Oil	2.0 x 10 <sup>-6</sup> lb/MMBtu (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> lb/MMBtu (0.13 lb/hr; 0.510 TPY)	BACT

- A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil. Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.
- B) The maximum emission limit for NO<sub>x</sub> is lowered to 15 ppm on 12/31/98 using appropriate combustion technology improvements or SCR. Compliance with the mass emission rates (lbs/hr and TPY) shall be demonstrated by the initial compliance test only (no annual test or test before renewal of operation permits are required). Pursuant to 40 CFR 60 Appendix B Performance Specification 2 Section 7, relative accuracy (RA) test data from the first RA test following 12/31/98 shall be used to demonstrate compliance with these mass emission standards and shall constitute the initial compliance test for these lower standards.
- C) 21 ppmvd at minimum load.  
15 ppmvd at base load.

D) 10% opacity at full load conditions.

E) Compliance with the NO<sub>x</sub> emission limits (ppmvd at 15% O<sub>2</sub> only) shall be demonstrated by the CEMS on or before 12/31/98 with prior written notice to the DEP Southwest District Office based on 24 hour block averages calculated as follows:

At the same time each day, a 24 hour block average shall be calculated for the monitored operating hours in the previous 24 hour period. The 24-hour block average shall be determined by summing the hourly average NO<sub>x</sub> concentrations for all valid monitored operating hours and dividing by the number of hourly average NO<sub>x</sub> concentrations in the previous 24 hour period. A monitored operating hour is each hour in which fuel is fired in the combustion turbine and at least two CEMS emission measurements are recorded at least 15 minutes apart. CEMS data taken during periods of: startup, shutdown, or malfunction as defined in 62-210.200 and 62-210.700 F.A.C., when fuel is not fired in the unit, or during CEMS quality assurance checks or when the CEMS is out of control shall be excluded from the 24-hour block average.



STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

# DISTRICT ROUTING SLIP

To: Jerry Kissel

DATE: 05/07/94

CC To:

	PENSACOLA	NORTHWEST DISTRICT	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Sopchoppy	Northwest District Satellite Office	
✓	TAMPA	SOUTHWEST DISTRICT	
	Punta Gorda	Southwest District Branch Office	
	Bartow	Southwest District Satellite Office	
	ORLANDO	CENTRAL DISTRICT	
	Melbourne	Central District Satellite Office	
	JACKSONVILLE	NORTHEAST DISTRICT	
	Gainesville	Northeast District Branch Office	
	FORT MYERS	SOUTH DISTRICT	
	Marathon	South District Branch Office	
	WEST PALM BEACH	SOUTHEAST DISTRICT	
	Port St. Lucie	Southeast District Branch Office	

☐ Reply Optional  
Date Due \_\_\_\_\_

☐ Reply Required  
Date Due: \_\_\_\_\_

☐ Info Only

Comments:

for you

RECEIVED  
MAY 09 1996  
Department of Environmental Protection  
SOUTHWEST DISTRICT

From:

Scott Shepherd

Tally



# Department of Environmental Protection

## DIVISION OF AIR RESOURCES MANAGEMENT

### APPLICATION FOR AIR PERMIT - LONG FORM

See Instructions for Form No. 62-210.900(1)

#### I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

#### Identification of Facility Addressed in This Application

Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: Auburndale Power Partners, Ltd.	
2. Site Name: Auburndale Cogeneration	
3. Facility Identification Number: 1050221 [ ] Unknown	
4. Facility Location: Street Address or Other Locator: City: County: Zip Code:	
5. Relocatable Facility? [ ] Yes [X] No	6. Existing Permitted Facility? [X] Yes [ ] No

#### Application Processing Information (DEP Use)

1. Date of Receipt of Application:	10/26/95
2. Permit Number:	1050221 - - - - AV
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

permit file

5/4 original

for internal use

manually track  
until ARMS

out of "beta" test

SS  
5/7/96

RECEIVED  
MAY 09 1996  
Department of Environmental Protection  
SOUTHWEST DISTRICT

3 digit project number  
assigned when ARMS  
logged.

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

# DISTRICT ROUTING SLIP

To: Jerry Kissel thru: Bill Thomas DATE: 4/15/96

CC To:

	<b>PENSACOLA</b>	<b>NORTHWEST DISTRICT</b>	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Sopchoppy	Northwest District Satellite Office	
✓	<b>TAMPA</b>	<b>SOUTHWEST DISTRICT</b>	
	Punta Gorda	Southwest District Branch Office	
	Bartow	Southwest District Satellite Office	
	<b>ORLANDO</b>	<b>CENTRAL DISTRICT</b>	
	Melbourne	Central District Satellite Office	
	<b>JACKSONVILLE</b>	<b>NORTHEAST DISTRICT</b>	
	Gainesville	Northeast District Branch Office	
	<b>FORT MYERS</b>	<b>SOUTH DISTRICT</b>	
	Marathon	South District Branch Office	
	<b>WEST PALM BEACH</b>	<b>SOUTHEAST DISTRICT</b>	
	Port St. Lucie	Southeast District Branch Office	

☐ Reply Optional  
Date Due \_\_\_\_\_

☐ Reply Required  
Date Due: \_\_\_\_\_

☐ Info Only

Comments:

for your file. A real  
Title V permit application.

From:

Scott Sheplek

Tel:

Tally

file

Summary checklist for initial Title V permit applications

Facility Name Auburndale Power Partners, Ltd. Project: Auburndale Cogeneration  
Facility ID No.: 1050221 receipt date 10/26/95

I. Preliminary scan of application submitted.

- a. Was application submitted to correct permitting authority? Y ✓ N
- b. Was an application filed? Y\* ✓ N
- c. Was the application filed timely? Y\* ✓ N
- d. Application format filed [check one].  
Hard copy of official version of form?       
A facsimile of official version of form?       
ELSA? ✓  
Some combination?
- e. 4 copies (paper/electronic) submitted? Y ✓ N
- f. Electronic information submitted previewed? Y ✓ N      N/A       
Electronic diskettes protected/virus scanned/marked? Y ✓ N      N/A
- g. Entire hard copy of Section I. provided (Pages 1-8 of form)? Y      N ✓  
Facility identified (Page 1)? [if not complete a Page 1] Y\*      [Attached ✓]  
R.O. certification signed and dated (Page 2)? Y\* ✓ N       
P.E. certification signed and dated (Page 7)? Y\* ✓ N
- h. Any confidential information? Y      N ✓  
If so, hard copy provided to us and EPA? Y\*      N
- i. Type of application filed.  
Application for Title V permit only? Y ✓ N       
Any units subject to acid rain? {see checklist} Y ✓ N

Reviewer's initials SS date 12/14/95

Note(s): [\*] = mandatory.

Comment(s): d. ELSA included Wordperfect files; files converted to Word  
and posted on DAFM-Common "r1ts0pt11". EARS "application  
worksheet" appeared inadequate; informed Terry Knowles. Hard copy  
printed of select submitted information: Applicable Requirements, AH,  
Methods of Operation, Insignificant Activities, Pollutant Information, and  
app. contact. Electronic files for TVI equipment and Procedures for  
start-up/shutdown appear blank.

Rule/Form/ELSA changes pending; "Part IV rulemaking."

Summary checklist for initial Title V permit applications (cont'd)

II. Application logged. ARMS TV "in beta testing"

ARMS Project Number assigned \_\_\_\_\_  
by initials \_\_\_\_\_ date \_\_\_\_/\_\_\_\_/\_\_\_\_

III. Application distributed.

Electronic/hard copies to appropriate people.

4 submitted

1- Original to file? Y ☒ N ☐

1- Permit engineer(s) \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

1- SW District Y ☒ N ☐

1- \_\_\_\_\_ County [Affected local program]? Y ☐ N ☐

Affected state(s)? Y ☐ N ☒  
to EPA with draft permit? Y ☐ N ☐

initials \_\_\_\_\_ date \_\_\_\_/\_\_\_\_/\_\_\_\_

Comment(s): Recommend not printing ELSA at this time.

{this checklist was developed from Rule 62-213.420(1)(b)2., F.A.C., effective 4/18/95 and DARM policy}

iapcheck.doc

Summary checklist for Title IV, Phase II permit applications

Facility Name Auburndale Power Partners, Ltd.

Plant Name: Auburndale Cogeneration receipt date 10/26/95

ORIS Code: S 4 6 S 8 Facility ID No.: 10 S 0 2 2 1 (not required)

- |  |                |                |
|--|----------------|----------------|
| a. July 1, 1995 version of application form(s) used?                             | Y* <u>    </u> | N <u>✓</u>     |
| b. Four (4) copies of application form(s) submitted?                             | Y* <u>    </u> | N <u>    </u>  |
| c. Certificate of Representation form on file?                                   | Y* <u>✓</u>    | N <u>    </u>  |
| d. Application form(s) signed by Designated Representative (DR) or alternate DR? | Y* <u>    </u> | N <u>    </u>  |
| e. Original signature of DR or alternate DR on one of 4 forms?                   | Y* <u>    </u> | N <u>    </u>  |
| f. Modifications made to wording on form(s)?                                     | Y <u>    </u>  | N* <u>    </u> |

Reviewer's initials TMC date 11/21/95

Note(s): [\*] = mandatory.

Comment(s): a. 11/22/95 letter.

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DISTRICT ROUTING SLIP

To: B Thomas DATE: 1-24

CC To:

	<b>PENSACOLA</b>	<b>NORTHWEST DISTRICT</b>	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Sopchoppy	Northwest District Satellite Office	
<input checked="" type="checkbox"/>	<b>TAMPA</b>	<b>SOUTHWEST DISTRICT</b>	
	Punta Gorda	Southwest District Branch Office	
	Bartow	Southwest District Satellite Office	
	<b>ORLANDO</b>	<b>CENTRAL DISTRICT</b>	
	Melbourne	Central District Satellite Office	
	<b>JACKSONVILLE</b>	<b>NORTHEAST DISTRICT</b>	
	Gainesville	Northeast District Branch Office	
	<b>FORT MYERS</b>	<b>SOUTH DISTRICT</b>	
	Marathon	South District Branch Office	
	<b>WEST PALM BEACH</b>	<b>SOUTHEAST DISTRICT</b>	
	Port St. Lucie	Southeast District Branch Office	

☐ Reply Optional  
Date Due \_\_\_\_\_

☐ Reply Required  
Date Due: \_\_\_\_\_

☐ Info Only

Comments:

**RECEIVED**  
JAN 26 1996

Department of Environmental Protection  
SOUTHWEST DISTRICT  
BY \_\_\_\_\_

From:

Tel:

A. Uniero

08-18-93

Route to:

1. Bill P. # 1/30/96  
Hank FYI 2/5/96
2. Jerry 2/15
3. file



# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

January 24, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Don Fields  
Executive Director  
Auburndale Power Partners, L. P.  
1501 Derby Avenue  
Auburndale, Florida 33823

Re: Amendment of Permit No. AC53-208321, PSD-FL-185(B)

Dear Mr. Fields:

Enclosed is one copy of the draft Permit Amendment, Intent to Issue, and Notice of Intent to Issue for publication by Auburndale Power Partners to amend the annual testing requirements for sulfuric acid mist and volatile organic compound emissions.

Please submit any comments you may have concerning the Department's proposed action to Mr. A. A. Linero, P. E., at the above address. If you have any questions regarding this matter, please call Teresa Heron, or Kanani K. Winans at (904) 488-1344.

Sincerely,

C.H. Fancy, P. E.  
Chief

Bureau of Air Regulation

CHF/aal/w

cc: Tom Davis, P. E.  
Bill Thomas, SWD  
Jewell Harper, EPA  
John Bunyak, NPS





# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

February xx, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Don Fields  
Executive Director  
Auburndale Power Partners, L. P.  
1501 Derby Avenue  
Auburndale, Florida 33823

Dear Mr. Fields:

RE: Amendment to Construction Permit No. AC53-208321, PSD-FL-185(B)  
AIRS ID No. 1050221-001-AC

The Department has reviewed your September 15 request to delete the annual testing requirements for sulfuric acid mist and VOC's emissions. The Department's determination on this amendment request is as follows:

**Amendment of the annual testing requirements.**

**Specific Condition No. 8 is amended as follows.**

**From:**

8. Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, and VOC standards shall be determined (while operating at 95-100% of the permitted maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July 1991 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission form Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
- Method 25 A. Determination of the Volatile Organic Compounds Emissions from Stationary Sources.

Other DER approved methods may be used for compliance testing after prior Departmental approval.

**DRAFT**

**To:**

8. Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, VOC, and H<sub>2</sub>SO<sub>4</sub> mist standards shall be determined (while operating at 95-100% of the permitted maximum heat rate input) within 180 days of initial operation and annually thereafter **for all pollutants except for VOC and H<sub>2</sub>SO<sub>4</sub> mist**, by the following reference methods as described in 40 CFR 60, Appendix A (July 1991 version) and adopted by reference in F.A.C. Rule 62-297.400. **The compliance testing for VOC and H<sub>2</sub>SO<sub>4</sub> mist will be required upon permit renewal (every 5 years).**

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Source **(upon permit renewal).**
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission form Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
- Method 25A. Determination of the Volatile Organic Compounds Emissions from Stationary Sources **(upon permit renewal).**

Other **DEP** approved methods may be used for compliance testing after prior Department approval.

This letter amendment must be attached to the construction permit, No. AC 53 - 208321, PSD-FL-185, and shall become part of the permit.

Sincerely,

Howard L. Rhodes  
Director  
Division of Air Resources  
Management

HLR/aal/kw

Attachment

Copies furnished to: B. Thomas, SWD  
J. Harper, EPA  
J. Bunyak, NPS  
T. Davis, P. E.

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an  
Application for Permit by:

DEP File No. 1050221-001-AC  
Polk County

Mr. Don Fields  
Executive Director  
Auburndale Power Partners, L. P.  
1501 Derby Avenue  
Auburndale, Florida 33823

---

INTENT TO ISSUE PERMIT AMENDMENT

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment (copy attached) to the applicant as detailed in the application/request specified above for the reasons stated in below.

The applicant, Auburndale Power Partners, applied on September 15, 1995 to the Department for a revision of their permit to delete the sulfuric acid mist and volatile organic compound emission annual testing requirements. This facility is located in Auburndale, Polk County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-212 and 62-4, Florida Administrative Code (F.A.C.). The project is not exempt from permitting procedures. The Department has determined that a permit amendment and public notice are required for the proposed work.

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 Notice of Intent to Issue Permit Amendment. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "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. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 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 amendment.

The Department will issue the permit amendment with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

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, 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, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL PROTECTION

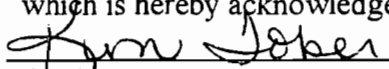


C. H. Fancy, P.E., Chief  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399  
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE PERMIT AMENDMENT all copies were mailed by certified mail before the close of business on 1-24-96 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.

 1-24-96  
Clerk Date

Copies furnished to:

B. Thomas, SWD  
J. Harper, EPA  
J. Bunyak, NPS  
T. Davis, P. E.

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT

1050221-001-AC

PSD-FL-185  
AC53-208321

The Department of Environmental Protection (Department) gives notice of its intent to issue a permit amendment to Auburndale Power Partners located at 1501 Derby Avenue, Auburndale, Florida 33823. This action will amend the annual testing requirements for sulfuric acid mist and volatile organic compound emissions at its gas and oil-fired electrical power generating facility in Polk County. The initial compliance tests demonstrated emissions at 12 to 15 percent of their permitted limits. Compliance testing for these pollutants will be required upon permit renewal (every five years). There will be no emission increase as a result of this change.

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, within 14 days of publication of this notice. 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 Notice. 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 publication 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, 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 Administrator, New Source Review Section at the Department of Environmental Protection, Bureau of Air Regulation, Mail Station 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
NOTICE OF PERMIT

In the matter of an  
Application for Permit by:

DER File No. AC 53-208321  
PSD-FL-185  
Polk County

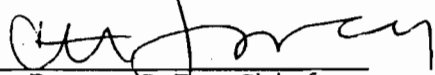
Ms. Patricia A. Haslach  
Environmental Manager  
Auburndale Power Partners, Limited Partnership  
12500 Fair Lakes Circle, Suite 420  
Fairfax, Virginia 22033

Enclosed is Permit Number AC 53-208321 to construct a 156 MW combined cycle combustion turbine at the Auburndale Power Partners, Limited Partnership facility in Auburndale, Polk County, Florida. This permit is issued pursuant to Section(s) 403, Florida Statutes.

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

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

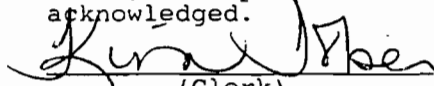
  
C. H. Fancy, P.E., Chief  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400  
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 12-17-92 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)

12-17-92  
(Date)

Copies furnished to:

T. Davis, P.E. ✓  
B. Thomas, SWD  
J. Harper, EPA  
B. Mitchell, NPS  
D. Martin, PCPD



Final Determination

Auburndale Power Partners, Limited Partnership  
Auburndale, Polk County, Florida

156 MW Combined Cycle System

Permit Number: AC53-208321  
PSD-FL-185

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

December 11, 1992

## FINAL DETERMINATION

The Technical Evaluation and Preliminary Determination for the permit to construct a 156 MW combined cycle combustion turbine at the Auburndale Power Partners (APP), Limited Partnership facility in Auburndale, Polk County, was distributed on October 1, 1992. The Notice of Intent was published in The Auburndale Star on October 8, 1992. Copies of the evaluation were available for inspection at the Department's offices in Tampa and Tallahassee.

APP's application for a permit to construct a 156 MW combined cycle combustion turbine at their Auburndale site has been reviewed by the Bureau of Air Regulation in Tallahassee.

No adverse comments were submitted by the U.S. Environmental Protection Agency (EPA) in their letter dated October 28, 1992, or by the U.S. Department of the Interior in their letter of November 5, 1992. Comments regarding an error in Table 1 were received from Mr. Thomas W. Davis, Senior Environmental Engineer for Environmental Consulting & Technology, Inc. (ECT). The Bureau has considered Mr. Davis' comments and has corrected Table 1 as requested.

The final action of the Department will be to issue the permit with the changes noted above.



## Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

**PERMITTEE:**

Auburndale Power Partners  
12500 Fair Lakes Circle, Ste. 420  
Fairfax, Virginia 22033

Permit Number: AC 53-208321

PSD-FL-185

Expiration Date: Oct. 30, 1995

County: Polk

Latitude/Longitude: 28°03'15"N

81°48'20"W

Project: 156 MW Combined Cycle  
System

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 or on file with the Department and made a part hereof and specifically described as follows:

Auburndale Power Partners proposes to operate a combined cycle system consisting of one combustion turbine, one steam turbine, and one heat recovery steam generator and ancillary equipment. This total system is rated at 156 MW output nominal capacity (52 MW output from the steam turbine generator). This facility is located on County Road 544-A (Derby Avenue) in Auburndale, Polk County, Florida. The UTM coordinates are Zone 17, 420.8 km East and 3103 km North.

The 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. Auburndale Power Partners (APP) application received February 10, 1992.
2. Department's letter dated March 10, 1992.
3. APP's letter received April 28, 1992.
4. APP's letter received May 19, 1992.
5. APP's letter received June 18, 1992.

PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

**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.

PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

**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.

PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

**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 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- (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;

PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

GENERAL CONDITIONS:

- 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:

Emission Limits

1. The maximum allowable emissions from this source shall not exceed the emission rates listed in Table 1.
2. Visible emissions shall not exceed 20% opacity. At full load, visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year).
4. This source is allowed to use natural gas as the primary fuel and low sulfur No. 2 distillate oil as the secondary fuel (with the conditions specified in Specific Condition No. 5 below).
5. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:
  - a) Maximum low sulfur No. 2 fuel oil consumption for the facility shall be allowed for the equivalent of 18 months (13,140 hours) of the initial facility operation, or until the Florida Gas Transmission (FGT) Phase III expansion is complete and natural gas is available; whichever occurs first. The unit start-up is expected by 10/94 and natural gas would be used by 4/96.
  - b) Once the FGT Phase III expansion is complete and natural gas is available to the facility, low sulfur No. 2 fuel oil firing shall be limited to 400 hours annually.

PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

**SPECIFIC CONDITIONS:**

- c) Maximum sulfur content in No. 2 fuel oil shall not exceed 0.05 percent by weight.
  - d) The maximum heat input of 1,170 MMBtu/hr LHV at ISO conditions (base load) for distillate fuel oil No. 2.
  - e) The maximum heat input of 1,214 MMBtu/hr LHV at ISO conditions (base load) for natural gas.
6. Any change in the method of operation, equipment or operating hours shall be submitted to DER's Bureau of Air Regulation.
7. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility may be included in the operating permit.

Compliance Determination

8. Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, and VOC standards shall be determined (while operating at 95-100% of the permitted maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July, 1991 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Every  
ref. CFR 4/3/94  
Method 4*
- ✓ Method 1. Sample and Velocity Traverses
  - ✓ Method 2. Volumetric Flow Rate
  - ✓ Method 3. Gas Analysis
  - ✓ Method 5. Determination of Particulate Matter Emissions from Stationary Sources
  - ✓ Method 9. Determination of the Opacity of the Emissions from Stationary Sources
  - ✓ Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Sources
  - ✓ Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
  - ✓ Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
  - ✓ Method 25A. Determination of the Volatile Organic Compounds Emissions from Stationary Sources

Other DER approved methods may be used for compliance testing after prior Departmental approval.

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



PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

SPECIFIC CONDITIONS:

10. Compliance with the SO<sub>2</sub> emission limit can also be determined by calculations based on fuel analysis using ASTM D4292 for the sulfur content of liquid fuels and ASTM D4084-82 or D3246-81 for sulfur content of gaseous fuel.

11. Trace elements of Beryllium (Be) shall be tested during initial compliance test using EMTIC Interim Test Method. As an alternative, Method 104 may be used; or Be may be determined from fuel sample analysis using either Method 7090 or 7091, and sample extraction using Method 3040 as described in the EPA solid waste regulations SW 846.

12. Mercury (Hg) shall be tested during initial compliance test using EPA Method 101 (40 CFR 61, Appendix B) or fuel sampling analysis using methods acceptable to the Department.

13. During performance tests, to determine compliance with the proposed NO<sub>x</sub> standard, measured NO<sub>x</sub> emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_x \text{ obs}) \left( \frac{P_{\text{Pref}}}{P_{\text{Obs}}} \right)^{0.5} e^{19 (H_{\text{Obs}} - 0.00633)} \left( \frac{288^\circ K}{T_{\text{AMB}}} \right)^{1.53}$$

where:

NO<sub>x</sub> = Emissions of NO<sub>x</sub> at 15 percent oxygen and ISO standard ambient conditions.

NO<sub>x</sub> obs = Measured NO<sub>x</sub> emission at 15 percent oxygen, ppmv.

P<sub>pref</sub> = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P<sub>Obs</sub> = Measured combustor inlet absolute pressure at test ambient pressure.

H<sub>Obs</sub> = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T<sub>AMB</sub> = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in writing in advance of the compliance test(s). The sources shall

PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

**SPECIFIC CONDITIONS:**

operate between 95% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature. Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

15. The permittee shall leave sufficient space suitable for future installation of SCR equipment should the facility be unable to meet the NO<sub>x</sub> standards, if required.

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

17. A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. While steam injection is being utilized for NO<sub>x</sub> control, the steam to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

18. Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel delivery receipts. The records of fuel oil usage shall be kept by the company for a two-year period for regulatory agency inspection purposes. For sulfur dioxide, periods of excess emissions shall be reported if the fuel being fired in the gas turbine exceeds 0.05 percent sulfur by weight.

Rule Requirements

19. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-210, 212, 296, 297 and 17-4, Florida Administrative Code and 40 CFR (July, 1991 version).

20. The sources shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 17-296.800(2)(a), Standards of Performance for Stationary Gas Turbines.

21. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210.300(1)).

PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

**SPECIFIC CONDITIONS:**

22. This source shall be in compliance with all applicable provisions of F.A.C. Rules 17-210.650: Circumvention; 17-2.250: Excess Emissions; 17-296.800: Standards of Performance for New Stationary Sources (NSPS); 17-297: Stationary Point Source Emission Test Procedures; and, 17-4.130: Plant Operation-Problems.

23. If construction does not commence within 18 months of issuance of this permit, then the permittee shall obtain from DER a review and, if necessary, a modification of the control technology and allowable emissions for the unit(s) on which construction has not commenced (40 CFR 52.21(r)(2)).

24. Quarterly excess emission reports, in accordance with the July 1, 1991 version of 40 CFR 60.7 and 60.334 shall be submitted to DER's Southwest District office.

25. Literature on equipment selected shall be submitted as it becomes available. A CT-specific graph of the relationship between NOx emissions and steam injection and also another of ambient temperature and heat inputs to the CT shall be submitted to DER's Southwest District office and the Bureau of Air Regulation.

26. Construction period fugitive dust emissions shall be minimized by covering or watering dust generation areas.

27. 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, nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

28. 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).

29. 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

PERMITTEE:  
Auburndale Power Partners

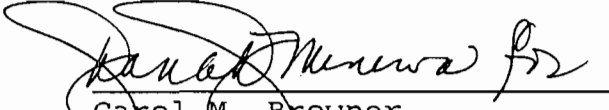
Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

**SPECIFIC CONDITIONS:**

noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 14<sup>th</sup> day  
of December, 1992

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

  
Carol M. Browner  
Secretary

Best Available Control Technology (BACT) Determination  
Auburndale Power Partners  
Polk County

The applicant proposes to install a combustion turbine generator at their facility in Polk County. The generator system will consist of one nominal 104 megawatt (MW) combustion turbine (CT), with exhaust through heat recovery steam generator (HRSG), which will be used to power a nominal 52 MW steam turbine.

The combustion turbine (Westinghouse 501D) will be capable of combined cycle operation. The applicant requested that the combustion turbine use oil (0.05% S by weight) for the first eighteen (18) months; thereafter, they will use natural gas. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity factor and type of fuel fired to be as follows:

Pollutant	Emissions (TPY)		PSD Significant Emission Rate (TPY)
	Oil	Gas/Oil	
NO <sub>x</sub>	1,007	573.8	40
SO <sub>2</sub>	307	175.2	40
PM/PM <sub>10</sub>	161	46	25/15
CO	320	190	100
VOC	44	27	40
H <sub>2</sub> SO <sub>4</sub>	39	23	7
Be	0.01	0.01	0.0004
As	0.05	0.05	0.1
Pb	0.51	0.51	0.6

Florida Administrative Code (F.A.C.) Rule 17-212.400 requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

February 2, 1992

BACT Determination Requested by the Applicant

<u>Pollutant</u>	<u>Proposed Limits</u>
NO <sub>x</sub>	25 ppmvd @ 15% O <sub>2</sub> (natural gas burning) 42 ppmvd @ 15% O <sub>2</sub> for oil firing
SO <sub>2</sub>	0.05% sulfur by weight
CO, VOC	Combustion Control
PM/PM <sub>10</sub>	Combustion Control

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

- o Combustion Products (e.g., particulates). Controlled generally by good combustion of clean fuels.
- o Products of Incomplete Combustion (e.g., CO). Control is largely achieved by proper combustion techniques.
- o Acid Gases (e.g., NO<sub>x</sub>). Controlled generally by gaseous control devices.

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

### BACT POLLUTANT ANALYSIS

#### COMBUSTION PRODUCTS

##### **Particulate Matter (PM/PM<sub>10</sub>)**

The design of this system ensures that particulate emissions will be minimized by combustion control and the use of clean fuels. The particulate emissions from the combustion turbine when burning natural gas and fuel oil will not exceed 0.013 and 0.047 lb/MMBtu, respectively. The Department accepts the applicant's proposed control for particulate matter and heavy metals.

##### **Lead, Arsenic, Beryllium (Pb, As, Be)**

The Department agrees with the applicant's rationale that there are no feasible methods to control lead, beryllium, and arsenic; except by limiting the inherent quality of the fuel.

Although the emissions of these toxic pollutants could be controlled by particulate control devices, such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of these pollutants.

#### PRODUCTS OF INCOMPLETE COMBUSTION

##### **Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)**

The emissions of carbon monoxide exceed the PSD significant emission rate of 100 TPY. The applicant has indicated that the carbon monoxide emissions from the proposed turbine is on exhaust concentrations of 15 ppmvd for natural gas firing and 25 ppmvd for fuel oil firing.

The majority of BACT emissions limitations have been based on combustion controls for carbon monoxide and volatile organic compounds minimization, additional control is achievable through the use of catalytic oxidation. Catalytic oxidation is a postcombustion control that has been employed in CO nonattainment areas where regulations have required CO emission levels to be less than those associated with wet injection. These installations have been required to use LAER technology and typically have CO limits in the 10-ppm range (corrected to dry conditions).

In an oxidation catalyst control system, CO emissions are reduced by allowing unburned CO to react with oxygen at the surface of a precious metal catalyst such as platinum. Combustion of CO starts at about 300°F, with efficiencies above 90 percent occurring at temperatures above 600°F. Catalytic oxidation occurs at temperatures 50 percent lower than that of thermal oxidation, which reduces the amount of thermal energy required. For CT/HRSG combinations, the oxidation catalyst can be located directly after the CT or in the HRSG. Catalyst size depends upon the exhaust flow, temperature, and desired efficiency.

Due to the oxidation of sulfur compounds and excessive formation of H<sub>2</sub>SO<sub>4</sub> mist emissions, oxidation catalyst are not considered to be technically feasible for gas turbines fired with fuel oil. Catalytic oxidation has not been demonstrated on a continuous basis when using fuel oil.

Use of oxidation catalyst technology would be feasible for natural gas-fired unit; however, the cost effectiveness of \$7,099 per ton of CO removed will have an economic impact on this project.

The Department is in agreement with the applicant's proposal of combustor design and good operating practices as BACT for CO and VOCs for this cogeneration project.

#### ACID GASES

##### **Nitrogen Oxides (NO<sub>x</sub>)**

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<sub>x</sub> control.

The applicant has stated that BACT for nitrogen oxides will be met by using steam injection and advanced combustor design to limit emissions to 25 ppmvd (corrected to 15% O<sub>2</sub>) when burning natural gas and 42 ppmvd (corrected to 15% O<sub>2</sub>) when burning fuel oil.



A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NO<sub>x</sub> emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NO<sub>x</sub> emissions. The SCR process combines vaporized ammonia with NO<sub>x</sub> in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NO<sub>x</sub> with a new catalyst. As the catalyst ages, the maximum NO<sub>x</sub> reduction will decrease to approximately 86 percent.

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

- a) Reduced power output.
- b) Ammonia slip.
- c) Disposal of hazardous waste generated (spent catalyst).
- d) A total SCR energy penalty of 14,911 MMBtu/yr, which is equivalent to the use of 14.2 million ft<sup>3</sup> of natural gas annually, based on a gas heating value of 1,050 Btu per ft<sup>3</sup>.
- e) Since several schools are located within close proximity to the site, the Polk County Planning Commission and the school boards have expressed concern over the potential for ammonia (NH<sub>3</sub>) exposure to high concentration and storage, as well.
- f) Ammonium bisulfate and ammonium sulfate particulate emissions (ammonium salts) due to the reaction of NH<sub>3</sub> with SO<sub>3</sub> present in the exhaust gases.
- g) Cost effectiveness for the application of SCR technology to the Auburndale cogeneration project was considered to be \$6,900 per ton of NO<sub>x</sub> removed.

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

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

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

For fuel oil firing, the cost associated with controlling NO<sub>x</sub> emissions must take into account the potential operating problems that can occur with using SCR in the oil firing mode.

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

The latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NO<sub>x</sub> injection ratio. For natural gas firing operation NO<sub>x</sub> emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater injection ratio. By lowering the injection ratio for oil firing, testing has indicated that NO<sub>x</sub> can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases. Based on this strategy SCR has been both proposed and established as BACT for oil fired combined cycle facilities with NO<sub>x</sub> 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 cost (operating plus amortized capital cost) to install SCR for this project at 100 percent capacity factor is \$2,283,326. Taking into consideration the total annual cost, a cost/benefit analysis of using SCR can now be developed.

Based on the information supplied by the applicant, it is estimated that the maximum annual NO<sub>x</sub> emissions using steam injection and advanced combustor design will be 574 tons/year. Assuming that SCR would reduce the NO<sub>x</sub> emissions by 65%, about 201 tons of NO<sub>x</sub> would be emitted annually. When this reduction (373 TPY) is taken into consideration with the total levelized annual cost of \$2,283,326; the cost per ton of controlling NO<sub>x</sub> is \$6,121. This calculated cost is higher than has previously been approved as BACT.

A review of the latest DER BACT determinations show limits of 15 ppmv (natural gas) using low-NO<sub>x</sub> burn technology. Based on the equipment selected, the applicant could not achieve that limit (15 ppmv) due to the fact that it is technically infeasible since their vendor, Westinghouse, does not presently offer this technology. The applicant and their CT vendor, Westinghouse, have agreed to lower NO<sub>x</sub> to 15 ppm by 9/30/97. This lower NO<sub>x</sub> limit will be

achieved by application of low-NO<sub>x</sub> burners or SCR. Therefore, the Department has accepted the steam injection and advanced combustor design as BACT for a limited time (up to 9/30/97).

#### **Sulfur Dioxide(SO<sub>2</sub>) and Sulfuric Acid Mist (H<sub>2</sub>SO<sub>4</sub>)**

The applicant has stated that sulfur dioxide (SO<sub>2</sub>) and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) emissions when firing fuel oil will be controlled by lowering the operating time to 400 hours/year per unit and the fuel oil sulfur content to a maximum of 0.05 % by weight. This will result in an annual emission rate of 175 tons SO<sub>2</sub> per year and 23 tons H<sub>2</sub>SO<sub>4</sub> mist per year.

In accordance with the "top down" BACT review approach, only two alternatives exist that would result in more stringent SO<sub>2</sub> emissions. These include the use of a lower sulfur content fuel oil or the use of wet lime or limestone-based scrubbers, otherwise known as flue gas desulfurization (FGD).

In developing the NSPS for stationary gas turbines, EPA recognized that FGD technology was inappropriate to apply to these combustion units. EPA acknowledged in the preamble of the proposed NSPS that "Due to the high volumes of exhaust gases, the cost of flue gas desulfurization (FGD) to control SO<sub>2</sub> emissions from stationary gas turbines is considered unreasonable." (23). EPA reinforced this point when, later on in the preamble, they stated that "FGD... would cost about two to three times as much as the gas turbine." (23). The economic impact of applying FGD today would be no different.

Furthermore, the application of FGD would have negative environmental and energy impacts. Sludge would be generated that would have to be disposed of properly, and there would be increased utility (electricity and water) costs associated with the operation of a FGD system. Finally, there is no information in the open literature to indicate that FGD has ever been applied to stationary gas turbines burning distillate oil.

The elimination of flue gas control as a BACT option then leaves the use of low sulfur fuel oil as the next option to be investigated. Auburndale Power Partners, as stated above, has proposed the use of No. 2 fuel oil with a 0.05% sulfur by weight as BACT for this project. The Department accepts their proposal as BACT for this project.

BACT Determination by DER

NO<sub>x</sub> Control

The information that the applicant presented and Department calculations indicates that the cost of controlling NO<sub>x</sub> (\$6,900/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<sub>x</sub> control is not justifiable as BACT at this time.

A review of the permitting activities for combined cycle proposals across the nation indicates that SCR has been required and most recently proposed for installations with a variety of operating conditions (i.e., natural gas, fuel oil, 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 steam injection and advanced combustor design as BACT for a limited time (up to 9/30/97).

The Department will revise and lower the allowable BACT limit for this project no later than 9/30/97. It is the Department's understanding that Westinghouse will develop new combustor technology within this period. If the 15 (gas)/42 (oil) ppmvd emission rates cannot be met by September 30, 1997, SCR will be installed. Therefore, the permittee shall install a duct module suitable for future installation of SCR equipment.

SO<sub>2</sub> Control

BACT for sulfur dioxide is the burning of fuel oil No. 2 with 0.05% sulfur content by weight.

VOC and CO Control

Combustion control will be considered as BACT for CO and VOC when firing natural gas.

Other Emissions Control

The emission limitations for PM and PM<sub>10</sub>, Be, Pb, and As are based on previous BACT determinations for similar facilities.

The emission limits for Auburndale Power Partners project are thereby established as follows:

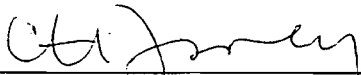
Pollutant	Emission Standards/Limitations		Method of Control
	Oil (a)	Gas (b)	
NO <sub>x</sub>	42 ppmv	25 ppmv (c) 15 ppmv	Steam Injection
CO	73 lbs/hr	44 lbs/hr	Combustion
PM & PM10	37 lbs/hr	10 lbs/hr	Combustion
SO <sub>2</sub>	70 lbs/hr	40 lbs/hr	No. 2 Fuel Oil (0.05% S)
H <sub>2</sub> SO <sub>4</sub>	14 lbs/hr	7.5 lbs/hr	No. 2 Fuel Oil (0.05% S)
VOC	10 lbs/hr	6 lbs/hr	Combustion
Pb	0.13 lb/hr		Fuel Quality
As	0.20 lb/hr		Fuel Quality
Be	0.003 lb/hr		Fuel Quality

- (a) No. 2 fuel oil burning for the first eighteen (18) months of operation. Max. 0.05% S by weight.
- (b) Natural gas (8360 hours per year), Fuel oil (400 hours per year).
- (c) Initial NO<sub>x</sub> emission rates for natural gas firing shall not exceed 25 ppm at 15% oxygen on a dry basis. The permittee shall achieve NO<sub>x</sub> emissions of 15 ppm at 15% oxygen at the earliest achievable date based on steam injection technology or any other technology available, but no later than 9/30/97.


Details of the Analysis May be Obtained by Contacting:

Preston Lewis, BACT Coordinator  
Department of Environmental Regulation  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Recommended by:

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

Approved by:

  
Carol M. Browner, Secretary  
Dept. of Environmental Regulation

December 7, 1992  
Date

December 14, 1992  
Date

Auburndale Power Partners - AC53-208321 (PSD-FL-185)

TABLE 1 - ALLOWABLE EMISSION RATES

Pollutant	Fuel <sup>A</sup>	Allowable Emission Standard/Limitation	Basel
NO <sub>x</sub>	Gas	15 ppmvd @ 15% O <sub>2</sub> & ISO ( 78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> & ISO (131.0 lbs/hr; 573.8 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	7.5 lbs/hr; 32.9 TPY	BACT
	Oil	14 lbs/hr; 61.3 TPY	BACT
Opacity	Gas	10% opacity <sup>D</sup>	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl
As	Oil	1.61 x 10 <sup>-4</sup> lb/MMBtu (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> lb/MMBtu (0.04 lb/hr; 0.17 TPY)	Appl
Be	Oil	2.0 x 10 <sup>-6</sup> lb/MMBtu (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> lb/MMBtu (0.13 lb/hr; 0.510 TPY)	BACT

A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil.

Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.

B) The NO<sub>x</sub> maximum limit will be lowered to 15 ppm by 9/30/97 (about 18 months after natural gas is first fired) using appropriate combustion technology improvements or SCR.

C) 21 ppmvd at minimum load.  
15 ppmvd at base load.

D) 10% opacity at full load conditions.

RECEIVED

FEB 10 1992

Bureau of  
Air Regulation

*See Storage Closet  
for complete  
Application Notebook  
& Additional info responses  
Eg*

**AUBURNDALE POWER PARTNERS,  
LIMITED PARTNERSHIP  
AUBURNDALE COGENERATION FACILITY**

**APPLICATION TO CONSTRUCT  
AIR POLLUTION SOURCES AND  
PREVENTION OF SIGNIFICANT DETERIORATION  
PERMIT APPLICATION**

**Prepared for:**

**AUBURNDALE POWER PARTNERS, LIMITED PARTNERSHIP  
Fairfax, Virginia**

**Prepared by:**

**ECT**

*Environmental Consulting & Technology, Inc.*

**Gainesville, Florida**

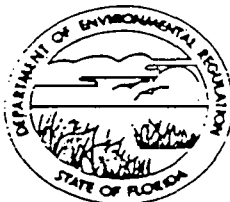
**ECT No. 91077-0400**

**February 1992**

#7,500 pd.  
2-10-95  
Recpt. #180740

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING  
2600 BLAIR STONE ROAD  
TALLAHASSEE, FLORIDA 32301



AC53-208321  
PSO-FL-185

BOB GRAHAM  
GOVERNOR  
VICTORIA J. TSCHINKEL  
SECRETARY

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Cogeneration Facility ☒ New<sup>1</sup> ☐ Existing<sup>1</sup>  
APPLICATION TYPE: ☒ Construction ☐ Operation ☐ Modification  
COMPANY NAME: Auburndale Power Partners, Limited Partnership COUNTY: Polk  
Identify the specific emission point source(s) addressed in this application (i.e. Line  
Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) CT/HRSG Unit No. 1  
SOURCE LOCATION: Street County Road 544-A (Derby Avenue) city Auburndale  
UTM: East 420.8 North 3103.3  
Latitude 28° 3' 15" N Longitude 81° 48' 20" W  
APPLICANT NAME AND TITLE: Patricia A. Haslach, Environmental Manager  
APPLICANT ADDRESS: 12500 Fair Lakes Circle, Suite 420, Fairfax, Virginia 22033

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative\* of Auburndale Power Partners,  
Limited Partnership  
I certify that the statements made in this application for a construction  
permit are true, correct and complete to the best of my knowledge and belief. Further,  
I agree to maintain and operate the pollution control source and pollution control  
facilities in such a manner as to comply with the provision of Chapter 403, Florida  
Statutes, and all the rules and regulations of the department and revisions thereof. I  
also understand that a permit, if granted by the department, will be non-transferable  
and I will promptly notify the department upon sale or legal transfer of the permitted  
establishment.

\*Attach letter of authorization

Signed: Jerome L. Glazer  
Jerome L. Glazer, Vice President  
Name and Title (Please Type)

Date: 2/5/92 Telephone No. 703/222-0445

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have  
been designed/examined by me and found to be in conformity with modern engineering  
principles applicable to the treatment and disposal of pollutants characterized in the  
permit application. There is reasonable assurance, in my professional judgment, that

See Florida Administrative Code Rule 17-2.100(57) and (104)



the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed

Thomas W. Davis

Thomas W. Davis

Name (Please Type)

Environmental Consulting & Technology, Inc.

Company Name (Please Type)

P.O. Box 8188, Gainesville, Florida 32605-8188

Mailing Address (Please Type)

Florida Registration No. 36777 Date: February 5, 1992 Telephone No. 904/336-0444

#### SECTION II: GENERAL PROJECT INFORMATION

- A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

Construction of a nominal 150-MW cogeneration facility consisting of one combustion turbine and one heat recovery steam generator and ancillary equipment.

- B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction \_\_\_\_\_ Completion of Construction \_\_\_\_\_

- C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

See Section 4.0 of the PSD Permit Application.

- D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Not applicable.

E. Requested permitted equipment operating time: hrs/day 24; days/wk 7; wks/yr 52;  
if power plant, hrs/yr 8,760; if seasonal, describe: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

F. If this is a new source or major modification, answer the following questions.  
(Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? No  
a. If yes, has "offset" been applied? \_\_\_\_\_  
b. If yes, has "Lowest Achievable Emission Rate" been applied? \_\_\_\_\_  
c. If yes, list non-attainment pollutants. \_\_\_\_\_

2. Does best available control technology (SACT) apply to this source? Yes\*  
If yes, see Section VI.

3. Does the State "Prevention of Significant Deterioration" (PSD)  
requirement apply to this source? If yes, see Sections VI and VII. Yes\*

4. Do "Standards of Performance for New Stationary Sources" (NSPS)  
apply to this source? Yes\*

5. Do "National Emission Standards for Hazardous Air Pollutants"  
(NESHAP) apply to this source? No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply  
to this source? No

a. If yes, for what pollutants? \_\_\_\_\_

b. If yes, in addition to the information required in this form,  
any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justifi-  
cation for any answer of "No" that might be considered questionable.

\*See PSD Permit Application.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable: Not applicable.

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1) Not applicable.

1. Total Process Input Rate (lbs/hr): \_\_\_\_\_

2. Product Weight (lbs/hr): \_\_\_\_\_

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary) See also Sections 2.0 and 4.0 of PSD Permit Application.

Name of Contaminant	Emission <sup>1</sup>		Allowed <sup>2</sup> Emission Rate per Rule 17-2	Allowable <sup>3</sup> Emission lbs/hr	Potential <sup>4</sup> Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/XXhr	T/yr	
TSP/PM <sub>10</sub>	63.5	278		BACT	63.5	278	
SO <sub>2</sub>	275.1	1,205		BACT	275.1	1,205	
NO <sub>x</sub>	230.0	1,007		BACT	230.0	1,007	
CO	73.0	320		BACT	73.0	320	
VOC	10.0	44		BACT	10.0	44	

<sup>1</sup>See Section V, item 2. Oil-firing, first 18 months of operation.

<sup>2</sup>Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

<sup>3</sup>Calculated from operating rate and applicable standard.

<sup>4</sup>Emission, if source operated with control (See Section V, Item 3).

J. Control Devices: (See Section V, Item 4) See Section 4.0 of PSD Permit Application.

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural gas	1.27	1.40	1,391
Distillate fuel oil	8,799	9,686	1,327

\*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: Oil--0.2%, gas-- $\frac{10 \text{ gr S}}{100 \text{ scf}}$  Percent Ash: Oil--0.01, gas--neg.  
 Density: Oil--7.2 lbs/gal Typical Percent Nitrogen: Oil-- 0.015, gas--neg.  
 Heat Capacity: Oil--19,300 BTU/lb Oil--137,030 BTU/gal  
 Gas--21,811 Gas--980 BTU/cf  
 Other Fuel Contaminants (which may cause air pollution):

See Section 2.0 of PSD Permit Application.

F. If applicable, indicate the percent of fuel used for space heating. Not applicable.

Annual Average \_\_\_\_\_ Maximum \_\_\_\_\_

G. Indicate liquid or solid wastes generated and method of disposal.

Base load, 72°F ambient, oil-firing.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 160 ft. Stack Diameter: 18.0 ft.  
 Gas Flow Rate: 933,808 ACFM 590,062 DSCFM Gas Exit Temperature: 280 °F.  
 Water Vapor Content: 11.4 % Velocity: 61.2 FPS

SECTION IV: INCINERATOR INFORMATION

Not applicable.

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq. & Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste \_\_\_\_\_

Total Weight Incinerated (lbs/hr) \_\_\_\_\_ Design Capacity (lbs/hr) \_\_\_\_\_

Approximate Number of Hours of Operation per day \_\_\_\_\_ day/wk \_\_\_\_\_ wks/yr. \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Date Constructed \_\_\_\_\_ Model No. \_\_\_\_\_

	Volume (ft) <sup>3</sup>	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: \_\_\_\_\_ ft. Stack Diameter: \_\_\_\_\_ Stack Temp. \_\_\_\_\_

Gas Flow Rate: \_\_\_\_\_ ACFM \_\_\_\_\_ DSCFM\* Velocity: \_\_\_\_\_ FPS

\*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: ☐ Cyclone ☐ Wet Scrubber ☐ Afterburner

☐ Other (specify) \_\_\_\_\_

Brief description of operating characteristics of control devices: \_\_\_\_\_

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.): \_\_\_\_\_

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

#### SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]  
Not applicable.
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. See Section 4.0 of PSD Permit Application.
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).  
See Section 4.0 of PSD Permit Application.
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.) See Section 4.0 of PSD Permit Application.
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency). See Section 4.0 of PSD Permit Application.
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained. Not applicable.
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).  
See Section 2.0 of PSD Permit Application.
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.  
See Section 2.0 of PSD Permit Application.

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9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.  
Not applicable.

**SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY**

See SECTION 4.0 of PSD Permit Application.

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source?

☐ Yes ☐ No

Contaminant

Rate or Concentration

_____	_____
_____	_____
_____	_____
_____	_____

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy).

☐ Yes ☐ No

Contaminant

Rate or Concentration

_____	_____
_____	_____
_____	_____
_____	_____

C. What emission levels do you propose as best available control technology?

Contaminant

Rate or Concentration

_____	_____
_____	_____
_____	_____
_____	_____

D. Describe the existing control and treatment technology (if any).

1. Control Device/System:

2. Operating Principles:

3. Efficiency:\*

4. Capital Costs:

\*Explain method of determining

5. Useful Life:

6. Operating Costs:

7. Energy:

8. Maintenance Cost:

9. Emissions:

Contaminant

Rate or Concentration

10. Stack Parameters

a. Height:

ft.

b. Diameter:

ft.

c. Flow Rate:

ACFM

d. Temperature:

°F.

e. Velocity:

FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary).

1.

a. Control Device:

b. Operating Principles:

c. Efficiency:<sup>1</sup>

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy <sup>2</sup>

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device:

b. Operating Principles:

c. Efficiency:<sup>1</sup>

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:<sup>2</sup>

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

<sup>1</sup>Explain method of determining efficiency.

<sup>2</sup>Energy to be reported in units of electrical power - KWH design rate.



j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:<sup>1</sup>

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:<sup>2</sup>

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:<sup>1</sup>

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:<sup>2</sup>

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected:

1. Control Device:

2. Efficiency:<sup>1</sup>

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:<sup>2</sup>

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

Explain method of determining efficiency.

Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:<sup>1</sup>

Contaminant

Rate or Concentration

(8) Process Rate:<sup>1</sup>

b. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:<sup>1</sup>

Contaminant

Rate or Concentration

(8) Process Rate:<sup>1</sup>

10. Reason for selection and description of systems:

<sup>1</sup>Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

#### SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION

A. Company Monitored Data Not applicable; see Section 5.0 of PSD Permit Application.

1. \_\_\_\_\_ no. sites \_\_\_\_\_ TSP \_\_\_\_\_ ( ) SO<sub>2</sub> \_\_\_\_\_ Wind spd/dir \_\_\_\_\_

Period of Monitoring \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ to \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
month day year month day year

Other data recorded \_\_\_\_\_

o Attach all data or statistical summaries to this application.

Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? ☐ Yes ☐ No

b. Was instrumentation calibrated in accordance with Department procedures?

☐ Yes ☐ No ☐ Unknown

B. Meteorological Data Used for Air Quality Modeling See also Section 6.0 of PSD Permit Application.

1. 5 Year(s) of data from 01 / 01 / 82 to 12 / 31 / 86  
month day year month day year

2. Surface data obtained from (location) Orlando, Florida

3. Upper air (mixing height) data obtained from (location) Ruskin, Florida

4. Stability wind rose (STAR) data obtained from (location) Orlando, Florida

C. Computer Models Used See also Section 6.0 of the PSD Permit Application.

1. SCREEN Modified? If yes, attach description.

2. ISCST Modified? If yes, attach description.

3. \_\_\_\_\_ Modified? If yes, attach description.

4. \_\_\_\_\_ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data See PSD Permit Application.

Pollutant

Emission Rate

TSP \_\_\_\_\_ grams/sec

SO<sub>2</sub> \_\_\_\_\_ grams/sec

E. Emission Data Used in Modeling See PSD Permit Application.

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review. See PSD Permit Application.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources. See PSD Permit Application.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology. See PSD Permit Application.

## **1.0 INTRODUCTION AND SUMMARY**

### **1.1 INTRODUCTION**

Auburndale Power Partners, Limited Partnership, a wholly-owned subsidiary of Mission Energy Company, proposes to construct a new cogeneration facility near Auburndale, Polk County, Florida. The facility will be capable of producing approximately 150 megawatts (MW) of electricity and will also provide steam to several manufacturing plants located nearby. Operation of the cogeneration facility will result in the emission of air pollutants. Therefore, a permit is required prior to beginning facility construction, per Section 17-2.210, Florida Administrative Code (F.A.C.). This report, including the required permit application forms, constitutes application for authority to commence construction in accordance with the Florida Department of Environmental Regulation (FDER) rules contained in Chapter 17-2, F.A.C.

As defined in the FDER rules pertaining to prevention of significant deterioration (PSD) (Section 17-2.500, F.A.C.), the proposed facility will constitute a major stationary source. Therefore, this report and application is also submitted to satisfy the permitting requirements contained in the PSD rules and regulations.

In addition, FDER has developed guidelines for the review of facilities that will emit pollutants considered potentially toxic. The analysis to address these guidelines has been completed and is submitted herein for review.

This report is organized as follows: Section 1.2 provides an overview and a summary of the key regulatory determinations and predicted impacts. Section 2.0 describes the proposed facility and its emissions. Applicable air quality permitting requirements are presented in Section 3.0. Results of control technology determinations and analyses of existing air quality are given in Sections 4.0 and 5.0, respectively. Section 6.0 presents the approach used in the air quality impact assessments (i.e., modeling) and summarizes the results. Other potential air quality impacts of the

proposed facility are discussed in Section 7.0. Appendix A contains completed FDER application forms. Appendix B presents the derivation of emission estimates for non-criteria pollutants. Appendix C provides a copy of the protocol established to guide the analyses of air pollution control alternatives, while Appendix D includes a copy of the modeling protocol document. Appendix E contains copies of all modeling input and output files generated for the air quality impact assessments (both hard copy and diskette formats are provided). Appendix F provides worksheets used in the screening modeling analysis, and Appendix G provides summaries of raw Industrial Source Complex, short-term (ISCST) model results.

## **1.2 SUMMARY**

The proposed cogeneration facility will consist of a Westinghouse 501D5 combustion turbine (CT), an unfired heat recovery steam generator (HRSG), and a steam-turbine generator. The primary fuel over the life of the facility will be natural gas. However, the pipeline to deliver natural gas to the plant site is not yet in place. Therefore, during the facility's first 18 months of operation, low-sulfur distillate No. 2 fuel oil will be used. After the first 18 months of operation (i.e., after the natural gas pipeline to the site is in place), the use of fuel oil will be limited to no more than 400 hours per year.

The planned construction start date for the facility is November 1, 1992. The projected date for the facility to commence commercial operation is July 1, 1994. The natural gas pipeline is expected to be in place by December 1, 1994. The *planned* date of completion of the natural gas pipeline is less than 18 months after the commercial operation date. However, as the pipeline construction schedule is not definite, the ability to operate continuously on fuel oil for 18 months is needed as a contingency.

Based on continuous firing of No. 2 distillate fuel oil, the cogeneration facility will have the potential to emit 1,205 tons per year (tpy) of sulfur dioxide (SO<sub>2</sub>) and 1,007 tpy of nitrogen oxides (NO<sub>x</sub>). Regarding other *criteria* pollutants, the facility

(firing oil) will potentially emit 278 tpy of particulate matter (PM), 320 tpy of carbon monoxide (CO), 44 tpy of volatile organic compounds (VOCs), and 0.6 tpy of lead (Pb). Emissions of all of these pollutants will decrease substantially when the facility is fired primarily by natural gas. However, based on the continuous use of oil, each of these criteria pollutants is subject to PSD review. In addition, potential emissions of sulfuric acid ( $\text{H}_2\text{SO}_4$ ) mist, beryllium (Be), and inorganic arsenic (As) are projected to exceed the PSD review thresholds (again, based on firing oil) and are therefore also subject to PSD review.

For each pollutant subject to PSD review, an analysis of best available control technology (BACT) was conducted, as were analyses of existing air quality and air quality impacts. The BACT analyses were done using the required *top-down* approach. Air quality impacts were analyzed using appropriate dispersion models and meteorological data. Finally, emissions of potentially toxic air pollutants were modeled, and the impacts evaluated in the context of FDER's guidelines.

As presented herein, the analyses required for this permit application have resulted in the following conclusions.

- The use of good combustion practices and clean fuels is considered to be BACT for PM and heavy metals. The Auburndale cogeneration project will utilize the latest CT burner technology to maximize combustion efficiency and minimize PM emission rates. Project fuels will consist of natural gas and low-sulfur distillate oil.
- Application of advanced turbine combustor design and good operating practices to minimize incomplete combustion are proposed as BACT for CO and VOCs. CO exhaust concentrations are projected to be 15 and 25 parts per million by dry volume (ppmvd) for gas- and oil-firing, respectively. Cost effectiveness of oxidation catalyst was determined to be \$7,099 per ton of CO removed during gas-firing which exceeds costs previously determined to be reasonable for BACT determinations. Due to the oxidation of sulfur compounds and excessive formation of  $\text{H}_2\text{SO}_4$

mist emissions, oxidation catalysts are not considered to be technically feasible for gas turbines fired with fuel oil.

- Use of low-sulfur fuels is considered to represent BACT for CTs since post-combustion SO<sub>2</sub> controls are not justified. The Auburndale cogeneration project will utilize natural gas (containing less than 10 grains of sulfur per hundred standard cubic feet [gr S/100scf]) and low sulfur (maximum of 0.2 weight percent sulfur) distillate oil.
- BACT for NO<sub>x</sub> was determined to be the use of steam injection and advanced burner design to achieve NO<sub>x</sub> exhaust concentrations of 25 and 42 ppmvd [at 15 percent oxygen (O<sub>2</sub>) and iso conditions] for gas- and oil-firing, respectively. Cost effectiveness of selective catalytic reduction (SCR) technology was determined to be \$6,900 per ton of NO<sub>x</sub> removed, which exceeds costs previously determined to be reasonable for BACT determinations. In addition, there are significant technological problems and adverse environmental impacts associated with the use of SCR. Adverse environmental impacts include routine ammonia (NH<sub>3</sub>) emissions due to ammonia slip, significant public health risks due to accidental NH<sub>3</sub> releases, and increased particulate emissions. Local officials have voiced concerns over the handling and onsite storage of NH<sub>3</sub>, which would be inherent to the use of SCR technology.
- An exemption from the PSD preconstruction monitoring requirement is requested for all pollutants subject to review [excepting ozone (O<sub>3</sub>)] on the basis of projected facility impacts less than the *de minimis* values.
- An exemption from the PSD preconstruction monitoring requirement is appropriate for O<sub>3</sub> since the potential VOC emissions from the cogeneration facility are less than the *de minimis* threshold of 100 tpy.
- Dispersion modeling for SO<sub>2</sub>, PM, NO<sub>x</sub>, and CO resulted in maximum impacts less than the modeling *significance levels* for each pollutant and averaging time. Therefore, no further modeling studies relative to ambient air quality standards (AAQS) or PSD increments were necessary. That is, the impacts for the facility are predicted to be insignificant.

- Modeling of potentially toxic air pollutant emissions showed that maximum impacts will be below the FDER *no-threat* levels.
- The proposed facility will have no adverse impacts on soils or vegetation, and growth-related air quality impacts should be minimal.
- The nearest PSD Class I area is more than 100 kilometers (km) away. Given this distance and the use of natural gas as the primary fuel over the lifetime of the facility, no visibility impairment at any Class I area will result from the facility's operation.



## **2.0 DESCRIPTION OF THE PROPOSED FACILITY**

### **2.1 FACILITY LOCATION, LAYOUT, AND DESCRIPTION**

The Auburndale cogeneration facility will be located in north-central Polk County near the City of Auburndale. Figure 2-1 shows the general location of the site. Figure 2-2 provides a more detailed site location map. The site is located in an area predominated by other commercial activities. To the north are several businesses, including a concrete block plant; several residences are also located across the road to the north. A spray field operated by Coca Cola/Minute Maid is adjacent to the site to the east. Immediately to the south and west, the property has recently been replanted with citrus. The area across Highway 655, to the south, is mostly commercial establishments. A cemetery is located further to the west, as shown in Figure 2-2. The Coca Cola/Minute Maid plant and the Florida Distillers plant are located approximately 0.5 mile to the east. Adams Packing's facility is located approximately the same distance to the northeast.

The major components of the cogeneration facility will be as follows:

1. The base generating plant, composed of a CT, a HRSG, and a steam turbine;
2. Fuel delivery and storage facilities;
3. Mechanical draft cooling towers;
4. An electrical switchyard; and
5. Ancillary equipment, including raw and demineralized water storage tanks.

The planned layout of the cogeneration facility is illustrated in Figure 2-3. The stack will be located at approximately 420.8 km east, 3,103.3 km north (Zone 17), based on the Universal Transverse Mercator coordinate system.

Natural gas will be the primary fuel for the cogeneration facility over its lifetime. A long-term contract for natural gas has been obtained, and a pipeline to the site is scheduled to be completed by December 1, 1994. No. 2 distillate fuel oil will be the

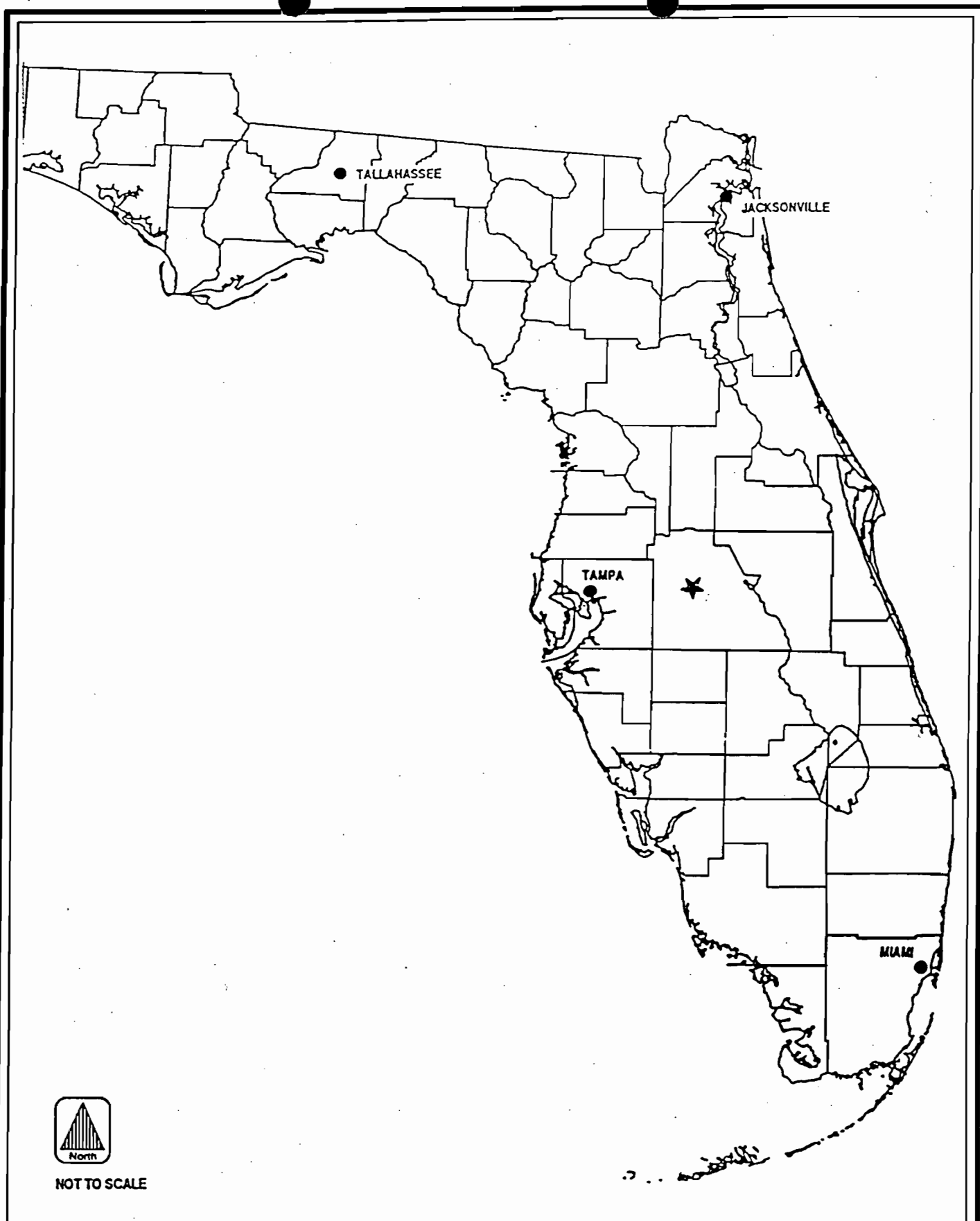


FIGURE 2-1.

GENERAL SITE LOCATION MAP

Source: ECT, 1992.

**ECT**  
Environmental Consulting & Technology, Inc.



backup fuel. Fuel oil will be delivered to the site by truck and stored onsite in two 600,000-gallon storage tanks (see Figure 2-3). The No. 2 fuel oil will have a maximum sulfur content of 0.2 percent. Pending the completion of the natural gas pipeline, fuel oil may be used continuously during the facility's first 18 months of operation. Fuel oil will be used a maximum of 400 hours per year thereafter.

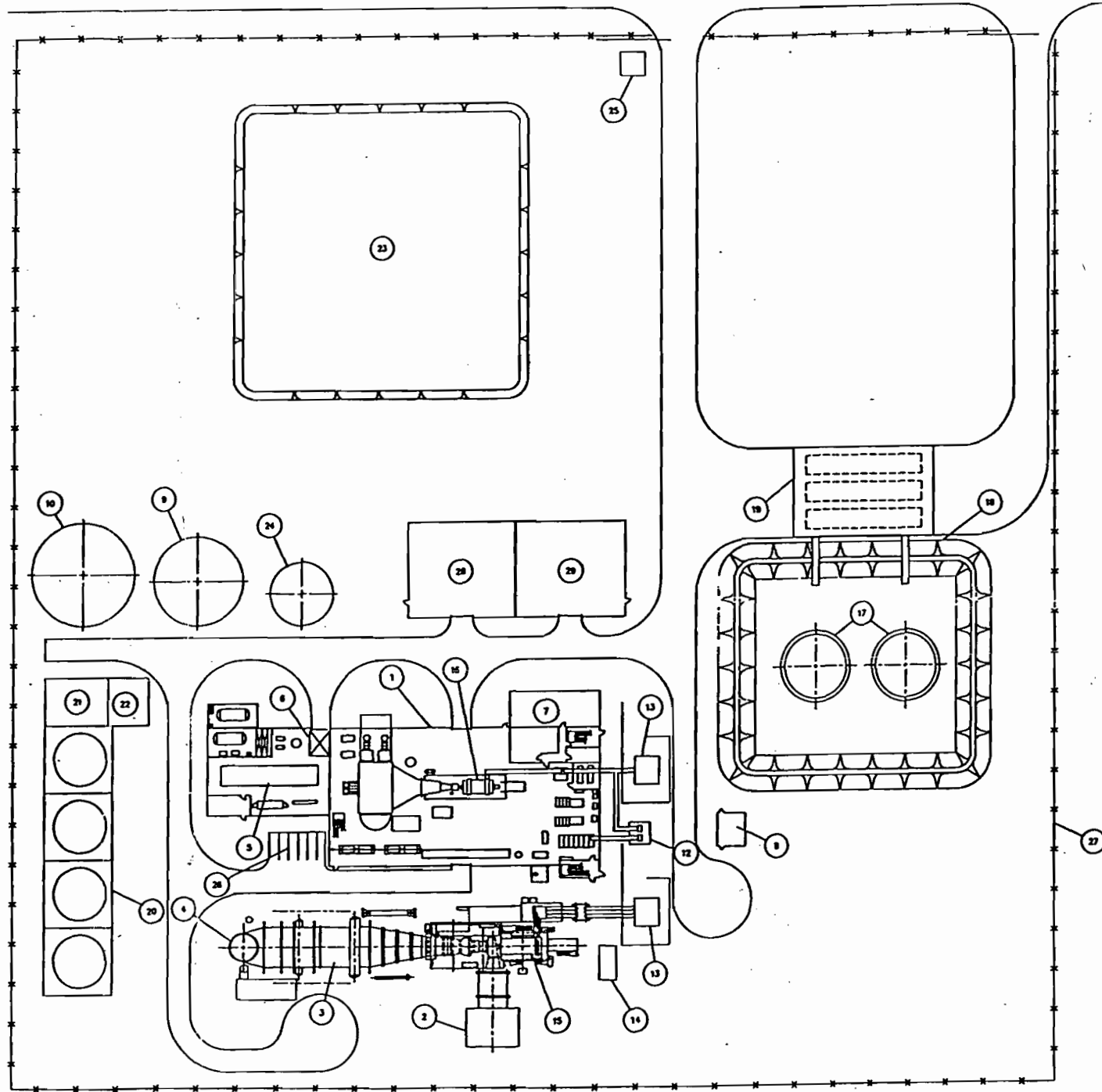
## **2.2 STACK PARAMETERS AND EMISSION RATES**

Tables 2-1 and 2-2 provide stack parameters for the cogeneration plant. Table 2-1 addresses the use of natural gas, Table 2-2 the use of No. 2 fuel oil. In each table parameters are provided over the expected range of load operations and, for each load, over a range of ambient temperatures. All of the given stack parameters are based on the use of steam injection for control of NO<sub>x</sub> emissions.

Similarly, Tables 2-3 and 2-4 provide criteria pollutant emissions for natural gas and No. 2 fuel oil, respectively. These emission rates are based on the results of the BACT analyses contained in Section 4.0 of this report.

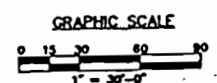
Tables 2-5 and 2-6 present estimated emissions of non-criteria pollutants for natural gas and No. 2 fuel oil, respectively. The basis for each of these estimates is contained in Appendix B.

N



# LEGEND

- 1 GENERATION BUILDING
- 2 AIR INLET FILTER
- 3 HEAT RECOVERY STEAM GENERATOR
- 4 STACK
- 5 WATER TREATMENT AREA
- 6 RESIN STORAGE AREA
- 7 OFFICE BUILDING
- 8 FUEL FORWARDING HOUSE
- 9 DEMINERALIZED WATER TANK - 56'
- 10 RAW WATER/FIRE PROTECTION TANK - 65'
- 12 STATION AUXILIARY TRANSFORMER
- 13 GENERATOR STEPUP TRANSFORMER
- 14 SWITCHYARD CONTROL ROOM
- 15 COMBUSTION TURBINE
- 16 STEAM TURBINE
- 17 FUEL OIL TANKS - 45'x50'-(2) REQD
- 18 FUEL OIL DIKE
- 19 FUEL OIL UNLOADING AREA
- 20 COOLING TOWER
- 21 CIRCULATING WATER PUMPS
- 22 CHEMICAL INJECTION/ELECTRICAL EQUIPMENT BUILDING
- 23 STORM WATER PERC POND 175'x175'x3'
- 24 NEUTRALIZATION TANK
- 25 GUARD HOUSE
- 26 PARKING
- 27 FENCE
- 28 MAINTENANCE BUILDING
- 29 WAREHOUSE BUILDING



PRELIMINARY

## PROPOSAL ISSUE

Westinghouse Electric Corporation  
POWER GENERATION - PROJECTS DIVISION  
4400 ALAFAYA TRAIL, ORLANDO, FL

DRWN ACG  
DATE 11/15/91

AUBURNDALE PROJECT  
150 MW - W5010S COMBINED CYCLE (1 ON 1)  
SITE PLAN

CAD INFO	FACTOR = 360	DRAWING NO.	REV
CAD NO. ACAD10\AUBRN1AB		66M-101	A



# Department of Environmental Protection

Lawton Chiles  
Governor

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

February 25, 1997

Virginia B. Wetherell  
Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Bruce L. Franco, P.E.  
Executive Director  
Auburndale Power Partners L.P.  
12500 Fair Lakes Circle Suite 200  
Fairfax, Virginia 22033-3804

RECEIVED  
MAR 07 1997  
D E P

Re: Auburndale Cogeneration Facility  
DRAFT Permit Modification, Permit No. AC53-208321 (PSD-FL-185)  
Extension of NO<sub>x</sub> Compliance Date on Westinghouse 501D Combustion Turbine


Dear Mr. Franco:

Enclosed is one copy of the Draft Air Construction Permit Modification for the extension of the NO<sub>x</sub> compliance date for the Westinghouse 501D combustion turbine located at the APP facility in 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, P.E. or Mr. Linero at 904/488-1344.

Sincerely,

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

AAL/aal/l

Enclosures

DRAFT

March XX, 1997

Certified Mail - Return Receipt Requested

Bruce L. Franco, P.E.  
Executive Director  
Auburndale Power Partners, L.P.  
12500 Fair Lakes Circle, Suite 200  
Fairfax, Virginia 22030

Re: Permit Modification AC53-208321 (PSD-FL-185)  
DEP File Number: 1050221-003  
Extension of NO<sub>x</sub> Compliance Date, Compliance by CEMS for NOX, and  
Removal of ISO Correction

Dear Mr. Franco:

The Department has reviewed the amendment request concerning the above referenced items relating to the gas turbine located at the Auburndale facility. This request is acceptable to the Department and the permit is hereby modified as follows:

Specific Condition No. 8:

FROM:

- Method 20 Determination of the Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines.

TO:

- Method 20 Determination of the Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines (**for compliance with 40 CFR 60.335 only and only for the initial test, no annual test or test prior to renewal of operation permits is required**)

DRAFT

Specific Condition 13:

FROM:

During performance tests, to determine compliance with the proposed NOX standard, measured NOX emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

TO:

During performance tests, to determine compliance with the NSPS Subpart GG NOX standard, measured NOX emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

Specific Condition 17:

FROM:

A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. While steam injection is being utilized for NOX control, the steam to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

TO:

A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. While **water** injection is being utilized for NOX control, the **water (all phases)** to fuel ratio shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG. **The NOx CEMS will be used in lieu of the water/fuel monitoring system and fuel bound nitrogen (FBN) monitoring, which are required in 40 CFR 60.334. The NOx CEMS shall be used to report excess emissions during periods of startup, shutdown, and malfunction in lieu of FBN monitoring and the water/fuel monitoring system described in 40 CFR 60.334(c)(1).**

Specific Condition 18:

FROM:

Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel deliver receipts. The records of fuel oil usage shall be kept by the company for a two-year period or regulatory agency inspection purposes. For sulfur dioxide, periods of excess emissions shall be reported if the fuel being fired in the gas turbine exceeds 0.05 percent sulfur by weight.



DRAFT

TO:

Sulfur and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel deliver receipts. The records of fuel oil usage shall be kept by the company for a two-year period or regulatory agency inspection purposes. For sulfur dioxide, periods of excess emissions shall be reported if the fuel being fired in the gas turbine exceeds 0.05 percent sulfur by weight.

Specific Condition 27:

FROM:

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, nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District Office by March 1 of each calendar year.

TO:

Pursuant to F.A.C. Rule 62-210.370(3), **Annual Operating Report for Air Pollution Emitting Facility**, 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 and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District Office by March 1 of each calendar year.

Table 1: (referenced in Specific Condition 1, see attached tables)

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

DRAFT

FROM:

Auburndale Power Partners - AC53-208321 (PSD-FL-185)

TABLE 1 - ALLOWABLE EMISSION RATES

Pollutant	Fuel <sup>A</sup>	Allowable Emission Standard/Limitation	Basis
NO <sub>x</sub>	Gas	15 ppmvd @ 15% O <sub>2</sub> & ISO (78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> & ISO (131.0 lbs/hr; 573.8 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	7.5 lbs/hr; 32.9 TPY	BACT
	Oil	14 lbs/hr; 61.3 TPY	BACT
Opacity	Gas	10% opacity <sup>D</sup>	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl.
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl.
As	Oil	1.61 x 10 <sup>-4</sup> lb/MMBtu (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> lb/MMBtu (0.04 lb/hr; 0.17 TPY)	Appl.
Be	Oil	2.0 x 10 <sup>-6</sup> lb/MMBtu (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> lb/MMBtu (0.13 lb/hr; 0.510 TPY)	BACT

- A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil.  
Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.
- B) The NO<sub>x</sub> maximum limit will be lowered to 15 ppm by 9/30/97 (about 18 months after natural gas is first fired) using appropriate combustion technology improvements or SCR.
- C) 21 ppmvd at minimum load.  
15 ppmvd at base load.
- D) 10% opacity at full load conditions.

**DRAFT**

TO:

**Auburndale Power Partners - AC53-208321 (PSD-FL-185)**

TABLE 1 - ALLOWABLE EMISSION RATES

Pollutant	Fuel <sup>A</sup>	Allowable Emission Standard/Limitation	Basis
NO <sub>x</sub>	Gas	15 ppmvd @ 15% O <sub>2</sub> <b>24 hour Block Ave</b> (78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> <b>24 hour Block Ave</b> (131.0 lbs/hr; 573.8 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> <b>24 hour Block Ave</b> (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	7.5 lbs/hr; 32.9 TPY	BACT
	Oil	14 lbs/hr; 61.3 TPY	BACT
Opacity	Gas	10% opacity <sup>D</sup>	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl.
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl.
As	Oil	1.61 x 10 <sup>-4</sup> lb/MMBtu (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> lb/MMBtu (0.04 lb/hr; 0.17 TPY)	Appl.
Be	Oil	2.0 x 10 <sup>-6</sup> lb/MMBtu (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> lb/MMBtu (0.13 lb/hr; 0.510 TPY)	BACT

- A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil. Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.
- B) The maximum emission limit for NO<sub>x</sub> is lowered to 15 ppm on 12/31/98 using appropriate combustion technology improvements or SCR. Compliance with the mass emission rates (lbs/hr and TPY) shall be demonstrated by the initial compliance test only (no annual test or test before renewal of operation permits are required). Pursuant to 40 CFR 60 Appendix B Performance Specification 2 Section 7, relative accuracy (RA) test data from the first RA test following 12/31/98 shall be used to demonstrate compliance with these mass emission standards and shall constitute the initial compliance test for these lower standards.
- C) 21 ppmvd at minimum load.  
15 ppmvd at base load.

DRAFT

- D) 10% opacity at full load conditions.
- E) Compliance with the NO<sub>x</sub> emission limits (ppmvd at 15% O<sub>2</sub> only) shall be demonstrated by the CEMS on or before 12/31/98 with prior written notice to the DEP Southwest District Office based on 24 hour block averages calculated as follows:

At the same time each day, a 24 hour block average shall be calculated for the monitored operating hours in the previous 24 hour period. The 24-hour block average shall be determined by summing the hourly average NO<sub>x</sub> concentrations for all valid monitored operating hours and dividing by the number of hourly average NO<sub>x</sub> concentrations in the previous 24 hour period. A monitored operating hour is each hour in which fuel is fired in the combustion turbine and at least two CEMS emission measurements are recorded at least 15 minutes apart. CEMS data taken during periods of: startup, shutdown, or malfunction as defined in 62-210.200 and 62-210.700 F.A.C., when fuel is not fired in the unit, or during CEMS quality assurance checks or when the CEMS is out of control shall be excluded from the 24-hour block average.

In the Matter of an  
Application for Permit Modification by:  
Auburndale Power Partners  
12500 Fair Lakes Circle Suite 200  
Fairfax, Virginia 22033-3804

---

DEP File No. 1050221-003 AC  
AC53-208321, PSD-FL-185  
Auburndale Cogeneration 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, Auburndale Power Partners, applied on January 31, 1997 to the Department for an air construction permit modification for its Auburndale Cogeneration Facility located in Auburndale, Polk County. The requested modification extends the compliance time to meet the 15 parts per million nitrogen oxides emission limit by 15 months for Specific Conditions 1 (Table 1) and revises Specific Conditions 1, 8, 13, 17, 18, and 27 applicable to the Westinghouse 501D combustion turbine. The new compliance date will be December 31, 1998.

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 compliance date for the described unit at the described facility and to make the other minor revisions.

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.

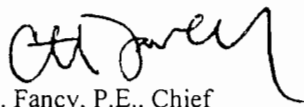
The application for a variance or waiver is made by filing a petition with the Office of General Counsel of the Department, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. The petition must specify the following information: (a) The name, address, and telephone number 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.

Permit No. AC53-208321, PSD-FL-185  
File No. 1050221-003-AC  
Page 4 of 4

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 3-5-97 to the person(s) listed:

Mr. Bruce L. Franco, P.E., Auburndale Power Partners \*  
Mr. Tom Davis, P.E., ECT  
Mr. Brian Beals, EPA  
Mr. John Bunyak, NPS  
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.

  
(Clerk) 3-5-97  
(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

Permit No. AC53-208321, PSD-FL-185  
File No. 1050221-003-AC  
Auburndale Power Partners-Auburndale Cogeneration facility  
Polk County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit modification to Auburndale Power Partners, for the Cogeneration facility located in Auburndale, Polk County. A Best Available Control Technology (BACT) determination was not required 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: Auburndale Power Partners, L.P. (APP), 12500 Fair Lakes Circle, Suite 200, Fairfax, Virginia 22033-3804.

The unit is in compliance with its present nitrogen oxide (NO<sub>x</sub>) limit of 25 parts per million (ppm). Specific Condition No. 1 (Table 1) of the above referenced construction permit requires that the 104 megawatt Westinghouse 501D combustion turbine achieve an NO<sub>x</sub> emission limit of 15 ppm by September 30, 1997. APP and the manufacturer have advised the Department that insufficient steam is produced to meet both the needs of its steam host and injection to further lower NO<sub>x</sub> emissions. The extension will allow APP and Westinghouse time to test a system which relies on steam and water injection. They will also evaluate other options such as installing auxiliary steam boilers, prior to making a final commitment to installation of a selective catalytic reduction system. The modification will extend the compliance date of Specific Condition 1 (Table 1 as related to NO<sub>x</sub>) from September 30, 1997 to December 31, 1998. Other very minor permit revisions will be made relating to schedule for compliance testing and submission of annual operating reports.

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 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.

## NOTICE TO BE PUBLISHED IN THE NEWSPAPER

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  
3804 Coconut Palm Drive  
Tampa, Florida 33619-8218  
Telephone: 813/744-6100  
Fax: 813/744-6458

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.

file 54

**AUBURNDALE POWER PARTNERS, LIMITED PARTNERSHIP**

**12500 Fair Lakes Circle Suite 200 Fairfax, Virginia 22033-3804**

**Telephone: (703) 222-0445 Fax: (703) 222-0516**

February 18, 1997

LTR.APP0064

Via Fax and Fed-Ex

Mr. Al Linero, P.E.  
Administrator, Division of Air Resources Management  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

RECEIVED  
FEB 24 1997  
D E P

**RE: Auburndale Power Partners, Limited Partnership (APP)  
Auburndale Cogeneration Facility/Permit AC53-208321/PSD-FL-185  
APP's PSD Permit Modification Request dated January 30, 1997**

Dear Mr. Linero:

Pursuant to our meeting held on February 6th and recent phone conversations with Martin Costello, the following three clarifications of Item (2) of the referenced January 30th permit modification request are provided for your consideration:

- Item (2) of the January 30th permit modification letter requested that a footnote be added to Table 1 of Permit AC53-208321/PSD-FL-185 indicating that compliance with the allowable NO<sub>x</sub> concentration ppmvd emission limits shall be determined on a 24-hour average basis. As discussed at our recent meeting, the existing NO<sub>x</sub> continuous emissions monitoring system (CEMS) would be used to determine compliance with the 24-hour block average allowable NO<sub>x</sub> concentration expressed as ppmvd at 15% oxygen. Auburndale Power Partners, Limited Partnership (APP) would also use the NO<sub>x</sub> CEMS to monitor and report excess emissions pursuant to 40 CFR Part 60, Subpart GG. Because the NO<sub>x</sub> CEMS would be used to monitor compliance with the permit BACT limits as well as NSPS Subpart GG excess emissions, APP requests that Specific Condition 17 pertaining to steam to fuel ratio monitoring be replaced with the following language:

"The NO<sub>x</sub> CEMS will be used in lieu of the steam/fuel monitoring system and fuel bound nitrogen (FBN) monitoring, which are required in accordance with 40 CFR 60, Subpart GG, and are used as indicators of compliance with the Subpart GG NO<sub>x</sub> standard. FBN levels are not required for excess emission reports when excess emissions are reported and based on the NO<sub>x</sub> CEMS. Certification tests of the NO<sub>x</sub> CEMS will replace the calibration of the steam/water monitoring device required by 40 CFR 60.335(c)(2)."

- Because the NO<sub>x</sub> CEMS will be used for compliance monitoring, APP requests that Specific Condition No. 8 of Permit AC53-208321/PSD-FL-185 be revised to remove the requirement for annual NO<sub>x</sub> testing using Reference Method 20. Deletion of the NO<sub>x</sub> testing requirement would become effective upon implementation of Item (2); i.e., 24-hour block averaging and use of NO<sub>x</sub> CEMS for compliance monitoring.
- Pursuant to recent conversations with Martin Costello, APP also requests that the following language be added to Table 1 of Permit AC53-208321/PSD-FL-185 regarding implementation of the 24-hour block average NO<sub>x</sub> concentration emission limits:

"a. NO<sub>x</sub> emission limits in ppmvd at 15% O<sub>2</sub> are blocked 24-hour averages (midnight to midnight) calculated as follows:

Compliance with the concentration (ppmvd at 15% O<sub>2</sub>) emission limits for NO<sub>x</sub> shall be demonstrated by the continuous emission monitoring system (CEMS). For each day (midnight to midnight), a 24-hour block average shall be calculated for the previous 24 hours. The 24-hour block average for each day (midnight to midnight) shall be determined by summing the hourly average NO<sub>x</sub> concentrations (expressed as ppmvd at 15% O<sub>2</sub>) for all available monitored operating hours divided by the number of available monitored operating hours. A monitored operating hour is each hour in which fuel is fired in the combustion turbine and in which at least two CEMS emission measurements are recorded at least 15 minutes apart. CEMS data taken during periods of startup, shutdown, or malfunction as defined in 62-210, F.A.C.; when fuel is not fired in the combustion turbine; when the CEMS is not calibrated; and during routine CEMS calibration and quality assurance checks, shall be excluded from the 24-hour block average."

As discussed during our meeting, APP requests that the effective date of Items (1) and (2) of the January 30th permit modification request, with Item (2) as revised by this letter (i.e. deletion of the ISO correction, 24-hour block averaging, use of NO<sub>x</sub> CEMS for compliance monitoring, and deletion of the annual NO<sub>x</sub> testing using Reference Method 20) be on or before December 31, 1998 with a provision that APP provide FDEP with thirty days prior notice should APP decide to implement any modification prior to December 31, 1998.

With regard to the public notice period associated with this permit modification request, APP would prefer the 30 day comment period. If possible we would appreciate whatever the Department can do to maintain the April 1 goal for obtaining the modified permit. Please call me at (703) 222-0445 if you have any further questions regarding this request.

Sincerely,



Bruce L. Franco, P.E.  
Executive Director

cc: Tom Davis

BLF/b

cc: *Matty Costello, BAR*  
*SWD*

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

# DISTRICT ROUTING SLIP

To: B. Thomas

DATE: 2-3

CC To

	<b>PENSACOLA</b>	<b>NORTHWEST DISTRICT</b>	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Sopchoppy	Northwest District Satellite Office	
<input checked="" type="checkbox"/>	<b>TAMPA</b>	<b>SOUTHWEST DISTRICT</b>	
	Punta Gorda	Southwest District Branch Office	
	Bartow	Southwest District Satellite Office	
	<b>ORLANDO</b>	<b>CENTRAL DISTRICT</b>	
	Melbourne	Central District Satellite Office	
	<b>JACKSONVILLE</b>	<b>NORTHEAST DISTRICT</b>	
	Gainesville	Northeast District Branch Office	
	<b>FORT MYERS</b>	<b>SOUTH DISTRICT</b>	
	Marathon	South District Branch Office	
	<b>WEST PALM BEACH</b>	<b>SOUTHEAST DISTRICT</b>	
	Port St. Lucie	Southeast District Branch Office	

☐ Reply Optional  
Date Due \_\_\_\_\_

☐ Reply Required  
Date Due: \_\_\_\_\_

☐ Info Only

Comments:

From:

A. Lino

**RECEIVED**  
FEB 05 1997  
Department of Environmental Protection  
SOUTHWEST DISTRICT  
BY \_\_\_\_\_

file  
1050221-003-AC

**AUBURNDALE POWER PARTNERS, LIMITED PARTNERSHIP**

12500 Fair Lakes Circle Suite 200 Fairfax, Virginia 22033-3804

Telephone: (703) 222-0445 Fax: (703) 222-0516

January 30, 1997

LTR.APP0057

Via Fax and Fed-Ex

Mr. Al Linero, P.E.  
Administrator, Division of Air Resources Management  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**RECEIVED**

JAN 31 1997

BUREAU OF  
AIR REGULATION

**Subj: Auburndale Cogeneration Facility  
Permit AC53-208321/PSD-FL-185**

Dear Mr. Linero:

Florida Department of Environmental Protection (FDEP) Permit AC53-208321/PSD-FL-185 was issued to Auburndale Power Partners, Limited Partnership (APP) on December 14, 1992. This permit requires a reduction in the current nitrogen oxides (NO<sub>x</sub>) emission limitation of 25 parts per million by volume, dry (ppmvd) @ 15% O<sub>2</sub> and ISO conditions to 15 ppmvd @ 15% O<sub>2</sub> and ISO conditions effective September 30, 1997. Pursuant to our meetings held in July and September of 1996 to discuss this requirement, APP requests the following amendments to Permit AC53-208321 (PSD-FL-185):

- (1) Table 1 of Subject Permit (Allowable Emission Rates) contains emission limitations in ppmvd for nitrogen oxides (NO<sub>x</sub>) corrected to International Organization for Standardization (ISO) reference conditions and 15% O<sub>2</sub>. In accordance with current FDEP policy (reference FDEP policy memo DARM-EM-05 dated November 22, 1995), deletion of the NO<sub>x</sub> concentration ISO correction requirement from Table 1 is requested;
- (2) The air pollutant emission limits specified in Table 1 (Allowable Emission Rates) for NO<sub>x</sub> concentrations (in ppmvd at 15% O<sub>2</sub>) do not contain an explicit averaging period for compliance purposes. The Auburndale Cogeneration Facility is equipped with a continuous emissions monitoring system (CEMS) to monitor NO<sub>x</sub> concentrations as presently required by Specific Condition 16. of Permit AC53-208321 (PSD-FL-185). APP requests that a footnote be added to Table 1 stating that compliance with the allowable NO<sub>x</sub> concentration ppmvd at 15% O<sub>2</sub> emission limits shall be determined on a 24-hour block average (midnight to midnight) basis; and

- (3) Extension of the deadline for meeting the 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> concentration emission limit from September 30, 1997 to December 31, 1998.

Regarding item 2 above, the averaging time for any future NO<sub>x</sub> performance test conducted pursuant to the New Source Performance Standard (NSPS) program would remain at one hour as you advised during our meetings. As indicated by Specific Condition No. 20., APP is presently required to comply with NSPS 40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines. The applicable 40 CFR 60 Subpart GG NO<sub>x</sub> emission limit is specified by §60.332(a)(1); i.e., a concentration limit of 75 ppmvd corrected to 15% oxygen, ISO reference conditions, and with adjustments for fuel bound nitrogen and heat rate. The 24-hour averaging period requested above would not apply to any future NSPS performance tests.

As advised at our July 8th meeting and confirmed in our September 24th meeting, APP is presently unable to meet the future 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> limitation during all hours of the year through increased steam injection and at the same time maintain its current steam export commitments. The supplier of the combustion turbine (CT), Westinghouse Electric Corporation, has confirmed that a higher steam to fuel ratio than the original design ratio is required to meet the 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> limitation; information from Westinghouse on this issue is provided as Attachment I. APP and Westinghouse are currently in the process of evaluating several emission control alternatives with the potential capability to allow APP to comply with the future 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> limitation including, but not limited to, combined steam and water injection, installation of auxiliary boiler(s), or installation of a selective catalytic reduction (SCR) control system.

Preliminary field testing of a combination of steam and water injection has shown promise that this technology may be able to achieve the required NO<sub>x</sub> concentration of 15 ppmvd at 15% O<sub>2</sub> while meeting our steam export commitments. Using a temporary field test arrangement, APP and Westinghouse plan to conduct further performance testing as well as longer duration operational testing of this technology during the first and second quarters of 1997. As part of this test program, the CT combustors will then be thoroughly inspected during APP's annual planned maintenance outage (currently scheduled by Florida Power Corp. for mid-October, 1997) for any physical damage that may result from the water injection tests. Because there are presently no Westinghouse CTs in commercial operation which employ a combination of steam and water injection, an extended operational evaluation period and internal turbine inspection are necessary to ensure that this innovative control technology can meet the required NO<sub>x</sub> emission standard while not causing any long-term detrimental effects on the combustion turbine performance or the reliability and life of its components.

Following the combined steam and water injection operational testing period and after the turbine inspection and any subsequent laboratory component evaluation results have been reported and analyzed, the various NO<sub>x</sub> control alternatives (e.g. combined steam and water injection, auxiliary boiler(s), and SCR) will be re-evaluated. A final decision will be made as to which technology should be employed to reduce APP's NO<sub>x</sub> emission to the 15 ppmvd at

15% O<sub>2</sub> limit and appropriate steps taken to ensure that the selected alternative is designed, procured, and installed during the 1998 annual outage that should be completed by October 31, 1998. To allow time for startup, troubleshooting, and compliance testing, APP requests a final compliance deadline of December 31, 1998.

The only reason why the existing facility can not achieve the 15 ppmvd at 15% O<sub>2</sub> emissions limit is that there is insufficient steam available for CT injection while maintaining process steam export commitments. Installation of auxiliary boilers to provide additional steam for injection into the CT solves this, as well as providing several additional benefits. As a result of a million dollar development program undertaken by APP and Westinghouse, the existing CT combustors push the envelope of steam injection technology and are very capable of achieving the 15 ppmvd at 15% O<sub>2</sub> limit provided that there is sufficient steam supply available. Supplementing the current injection steam with steam generated by auxiliary boiler(s) solves the one and only problem that prevents the existing facility, as it was originally designed and configured, from being able to comply with the 15 ppmvd at 15% O<sub>2</sub> emission limit. At this point in time, we know that only two of the three possible alternatives (auxiliary boilers and SCR) are commercially viable; and if the water injection technology fails to prove itself out and that situation were to remain true, then auxiliary boiler(s) is also APP's preferred solution. This is because the boiler(s) would only need to be fired as required; they would have no impact on plant efficiency when not operating; they can be maintained and repaired while the facility is operating (during hours that additional steam is not required to achieve 15 ppmvd at 15% O<sub>2</sub>); their operating characteristics, performance and maintenance costs/cycles can be predicted with confidence; they present less risk to the on-going commercial viability of the facility; and they provide additional operational flexibility beyond emissions control.

It is recognized that the auxiliary boiler approach would result in additional air emissions, including NO<sub>x</sub>, due to combustion of natural gas, however it is expected that the total NO<sub>x</sub> emissions of the auxiliary boiler(s) will not exceed 40 tons per year. If this alternative is selected, small (each greater than 10 MMBtu/hr but less than 100 MMBtu/hr input) natural gas-fired boiler(s) will be installed to provide reliability and flexibility in operations. Because each boiler will have a heat input greater than 10 MMBtu/hr and less than 100 MMBtu/hr, the boiler(s) will be subject to NSPS 40 CFR 60 Subpart Dc-Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Total potential emissions from the auxiliary boiler(s) will be less than the major modification significance levels for all PSD regulated pollutants and therefore the auxiliary boilers will not be subject to PSD permitting review.

With regard to the other NO<sub>x</sub> control options, the combined steam and water injection control technology compares favorably with the other alternatives with respect to operational and environmental considerations; however, its performance capability, economics, and commercial viability must still be established. An SCR NO<sub>x</sub> control system, although commercially proven, presents several disadvantages including additional particulates; ammonia emissions due to unreacted ammonia; an increase in the complexity of plant



operations by the addition of a sophisticated air pollution control system that requires the handling and storage of ammonia; injection nozzles subject to plugging and which can not be repaired on-line; catalyst life cycles that can not be definitively established; and most importantly, the fact that the additional backpressure it places on the CT exhaust would adversely impact the CT's efficiency/natural gas consumption, even during periods when SCR operation is not required to achieve 15 ppmvd at 15% O<sub>2</sub>.

The ability of the existing steam injection system to achieve 15 ppmvd at 15% O<sub>2</sub> in any given hour is a function of the ambient temperature and the export steam rate delivered to APP's two steam hosts. Since both of these factors can vary over a wide range and neither is entirely predictable, it is difficult to determine how many hours out of the year supplemental control of NO<sub>x</sub> will be required or exactly when it will be needed, although, it is clear that supplemental control of NO<sub>x</sub> will not be required during every operating hour of the year and maybe not even every year. This situation makes it very difficult to justify a large capital expenditure in addition to what has already been spent on the combustor development program and the combustors themselves, just to patch what may be only an intermittent event that is dependent on the weather and the growth *or decline* of our steam hosts' businesses. This is especially true for an expenditure such as SCR which offers no other advantages other than NO<sub>x</sub> control and has so many disadvantages associated with it.

The requested deadline extension of 15 months for meeting the 15 ppmvd NO<sub>x</sub> concentration limit will result in higher NO<sub>x</sub> emissions during the extension period due to continued operation at the present actual NO<sub>x</sub> CT exhaust concentration of less than 25 ppmvd. However, FDEP Permit AC53-208321/PSD-FL-185 authorized the use of No. 2 fuel oil for an initial 18 month period based on the anticipated unavailability of natural gas. As discussed during our meetings, APP undertook extraordinary measures to make natural gas available at the time of initial operations and therefore the firing of No. 2 fuel oil was able to be avoided. Because NO<sub>x</sub> emissions are significantly greater when fuel oil is combusted in comparison to natural gas (i.e., by a factor of almost two), the avoidance of fuel oil combustion resulted in a substantial decrease in actual NO<sub>x</sub> emissions. Therefore, on a cumulative basis, facility NO<sub>x</sub> emissions, including the deadline extension, will be well below the level originally authorized by FDEP Permit AC53-208321/PSD-FL-185 had natural gas not been available at the time of initial startup. It is also important to note that the APP facility is located in an area (Polk County) which is classified attainment for all criteria pollutants, including NO<sub>2</sub> and ozone. Prior dispersion modeling demonstrated that NO<sub>x</sub> ambient impacts will be insignificant under worst-case conditions; i.e., during oil-firing. Accordingly, ambient impacts of NO<sub>x</sub> will remain insignificant during the deadline extension period.

In summary, a 15 month extension to the current September 30, 1997 deadline is requested to allow sufficient time to evaluate the commercial potential of the combined steam and water injection NO<sub>x</sub> control technology, make a final control alternative decision based on the best available data, and then design, procure, install, start-up, shake-down and compliance test the selected alternative. APP proposes to submit its final control alternative decision, as well as a

design, procurement, and construction schedule, to the Department no later than February 28, 1998. Provided that the additional permitting required to facilitate the use of auxiliary boiler(s) is completed, the February 28, 1998 date will allow time to make a reasoned decision among the NO<sub>x</sub> control alternatives based on the best available information while also providing adequate time to implement any control alternative selected and demonstrate compliance by the final December 31, 1998 deadline. This schedule is also structured to allow APP time to obtain agreement on the final path forward from its partners, banks, EPC contractor and combustion turbine vendor. With regard to the permitting of the auxiliary boilers, it is our intent to begin this process shortly after the permit modifications requested herein have been obtained.

APP submitted an initial Title V application to the Department in October 1995. In response to Department questions, additional information regarding the Title V permit application was submitted to the Department in November 1996. APP requests that the information contained in this permit modification letter be considered as an amendment to the previously submitted Title V permit application, and that any modified terms and conditions of Permit AC53-208321/PSD-FL-185 also be included in the draft Title V permit.

A permit modification fee check in the amount of \$250.00 is attached. Since our goal is to obtain these permit amendments by April 1, 1997, I would like to schedule a meeting with the Department sometime during the first two weeks of February. I already plan to be in Florida next week and can make myself available at your convenience to discuss the ensuing permit process and answer any questions you may have on this permit amendment request. I will call you tomorrow to see if we can set a specific date and time.

Sincerely,



Bruce L. Franco, P.E.  
Executive Director

BLF/bp

Attachments

CC: SWD  
EPA  
NPS  
H. Hirst  
C. Holladay



## ATTACHMENT I

**Westinghouse  
Electric Corporation**

Generation Systems Division  
4400 Alafaya Trail  
Orlando, Florida 32826

January 30, 1997

Auburndale Power Partners, Limited Partnership  
12500 Fair Lakes Circle, Suite 200  
Fairfax, Virginia 22033

Attention: Bruce Franco

Subject: Auburndale Power Partners, Limited Partnership  
Auburndale Cogeneration Facility / 15 ppm NOx Compliance

Dear Mr. Franco:

Westinghouse Electric Corporation is supporting the Auburndale Cogeneration Facility's efforts to reduce their NOx emissions. The following is a summary of our efforts to date.

After an extensive and costly development program, Westinghouse has produced the DF-42 combustor system to meet low NOx level emission requirements. This low emissions combustor uses water or steam injection to lower NOx levels. Westinghouse has tested and evaluated the performance of the DF-42 combustor using steam injection at the Auburndale Cogeneration Facility and has found that the steam flow required to meet the 15 ppmvd at 15% O<sub>2</sub> NOx requirement is greater than originally projected.

Currently, the Auburndale plant does not produce sufficient steam to simultaneously meet the maximum export steam flow commitments and the 15 ppmvd at 15% O<sub>2</sub> NOx emissions requirement. Therefore, consideration is being given to increasing the steam generation capacity by the addition of an auxiliary boiler, utilizing a combination of water and steam injection for NOx control, or adding a selective catalytic reduction system (SCR). Westinghouse is currently performing detailed calculations to determine the extent of the steam shortage under various combinations of operating and ambient conditions.

Of these three methods, the combination of water and steam injection is expected to have a good possibility for success with relatively minor impacts on the existing plant design and operation. During the October 1996 plant outage, a water injection system was installed on the combustion turbine at Auburndale. During an initial limited test of the combined water and steam injection system in December 1996, performed at base load and at low water injection rates, combustion remained very stable, steam injection was reduced appreciably, and NOx levels below 15 ppmvd at 15% O<sub>2</sub> were achieved. However, CO emissions began to rise more rapidly than expected, as the water injection rate was increased. Although further investigation is required, the higher CO emission levels might be a result of water injection mechanical problems and may be reduced after repairs are made.

Further testing of the combined water and steam injection system cannot take place until mid-March, when the process steam flows can be interrupted to make adjustments to the water injection system. The combination of water injection and steam injection is expected to allow the export steam flow commitments and 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> limit to be met simultaneously. Additional testing is planned and will allow an evaluation of this expectation, as well as any impacts on CT components, plant operations, and other emissions.

We hope this information is useful. If we can be of further assistance on this matter, please feel free to contact us at any time.

Sincerely,

*B. A. Beeson for*

Ben Richardson, Principal Engineer  
Operating Plant Technical Support

AUBURNDALE POWER PARTNERS, LIMITED PARTNERSHIP

12500 Fair Lakes Circle Suite 200 Fairfax, Virginia 22033-3804

Telephone: (703) 222-0445 Fax: (703) 222-0516

January 30, 1997

LTR.APP0057

Via Fax and Fed-Ex

Mr. Al Linero, P.E.  
Administrator, Division of Air Resources Management  
Florida Department of Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**RECEIVED**

JAN 31 1997

BUREAU OF  
AIR REGULATION

**Subj: Auburndale Cogeneration Facility  
Permit AC53-208321/PSD-FL-185**

Dear Mr. Linero:

Florida Department of Environmental Protection (FDEP) Permit AC53-208321/PSD-FL-185 was issued to Auburndale Power Partners, Limited Partnership (APP) on December 14, 1992. This permit requires a reduction in the current nitrogen oxides (NO<sub>x</sub>) emission limitation of 25 parts per million by volume, dry (ppmvd) @ 15% O<sub>2</sub> and ISO conditions to 15 ppmvd @ 15% O<sub>2</sub> and ISO conditions effective September 30, 1997. Pursuant to our meetings held in July and September of 1996 to discuss this requirement, APP requests the following amendments to Permit AC53-208321 (PSD-FL-185):

- (1) Table 1 of Subject Permit (Allowable Emission Rates) contains emission limitations in ppmvd for nitrogen oxides (NO<sub>x</sub>) corrected to International Organization for Standardization (ISO) reference conditions and 15% O<sub>2</sub>. In accordance with current FDEP policy (reference FDEP policy memo DARM-EM-05 dated November 22, 1995), deletion of the NO<sub>x</sub> concentration ISO correction requirement from Table 1 is requested;
- (2) The air pollutant emission limits specified in Table 1 (Allowable Emission Rates) for NO<sub>x</sub> concentrations (in ppmvd at 15% O<sub>2</sub>) do not contain an explicit averaging period for compliance purposes. The Auburndale Cogeneration Facility is equipped with a continuous emissions monitoring system (CEMS) to monitor NO<sub>x</sub> concentrations as presently required by Specific Condition 16. of Permit AC53-208321 (PSD-FL-185). APP requests that a footnote be added to Table 1 stating that compliance with the allowable NO<sub>x</sub> concentration ppmvd at 15% O<sub>2</sub> emission limits shall be determined on a 24-hour block average (midnight to midnight) basis; and

- (3) Extension of the deadline for meeting the 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> concentration emission limit from September 30, 1997 to December 31, 1998.

Regarding item 2 above, the averaging time for any future NO<sub>x</sub> performance test conducted pursuant to the New Source Performance Standard (NSPS) program would remain at one hour as you advised during our meetings. As indicated by Specific Condition No. 20., APP is presently required to comply with NSPS 40 CFR 60 Subpart GG - Standards of Performance for Stationary Gas Turbines. The applicable 40 CFR 60 Subpart GG NO<sub>x</sub> emission limit is specified by §60.332(a)(1); i.e., a concentration limit of 75 ppmvd corrected to 15% oxygen, ISO reference conditions, and with adjustments for fuel bound nitrogen and heat rate. The 24-hour averaging period requested above would not apply to any future NSPS performance tests.

As advised at our July 8th meeting and confirmed in our September 24th meeting, APP is presently unable to meet the future 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> limitation during all hours of the year through increased steam injection and at the same time maintain its current steam export commitments. The supplier of the combustion turbine (CT), Westinghouse Electric Corporation, has confirmed that a higher steam to fuel ratio than the original design ratio is required to meet the 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> limitation; information from Westinghouse on this issue is provided as Attachment I. APP and Westinghouse are currently in the process of evaluating several emission control alternatives with the potential capability to allow APP to comply with the future 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> limitation including, but not limited to, combined steam and water injection, installation of auxiliary boiler(s), or installation of a selective catalytic reduction (SCR) control system.

Preliminary field testing of a combination of steam and water injection has shown promise that this technology may be able to achieve the required NO<sub>x</sub> concentration of 15 ppmvd at 15% O<sub>2</sub> while meeting our steam export commitments. Using a temporary field test arrangement, APP and Westinghouse plan to conduct further performance testing as well as longer duration operational testing of this technology during the first and second quarters of 1997. As part of this test program, the CT combustors will then be thoroughly inspected during APP's annual planned maintenance outage (currently scheduled by Florida Power Corp. for mid-October, 1997) for any physical damage that may result from the water injection tests. Because there are presently no Westinghouse CTs in commercial operation which employ a combination of steam and water injection, an extended operational evaluation period and internal turbine inspection are necessary to ensure that this innovative control technology can meet the required NO<sub>x</sub> emission standard while not causing any long-term detrimental effects on the combustion turbine performance or the reliability and life of its components.

Following the combined steam and water injection operational testing period and after the turbine inspection and any subsequent laboratory component evaluation results have been reported and analyzed, the various NO<sub>x</sub> control alternatives (e.g. combined steam and water injection, auxiliary boiler(s), and SCR) will be re-evaluated. A final decision will be made as to which technology should be employed to reduce APP's NO<sub>x</sub> emission to the 15 ppmvd at

15% O<sub>2</sub> limit and appropriate steps taken to ensure that the selected alternative is designed, procured, and installed during the 1998 annual outage that should be completed by October 31, 1998. To allow time for startup, troubleshooting, and compliance testing, APP requests a final compliance deadline of December 31, 1998.

The only reason why the existing facility can not achieve the 15 ppmvd at 15% O<sub>2</sub> emissions limit is that there is insufficient steam available for CT injection while maintaining process steam export commitments. Installation of auxiliary boilers to provide additional steam for injection into the CT solves this, as well as providing several additional benefits. As a result of a million dollar development program undertaken by APP and Westinghouse, the existing CT combustors push the envelope of steam injection technology and are very capable of achieving the 15 ppmvd at 15% O<sub>2</sub> limit provided that there is sufficient steam supply available. Supplementing the current injection steam with steam generated by auxiliary boiler(s) solves the one and only problem that prevents the existing facility, as it was originally designed and configured, from being able to comply with the 15 ppmvd at 15% O<sub>2</sub> emission limit. At this point in time, we know that only two of the three possible alternatives (auxiliary boilers and SCR) are commercially viable; and if the water injection technology fails to prove itself out and that situation were to remain true, then auxiliary boiler(s) is also APP's preferred solution. This is because the boiler(s) would only need to be fired as required; they would have no impact on plant efficiency when not operating; they can be maintained and repaired while the facility is operating (during hours that additional steam is not required to achieve 15 ppmvd at 15% O<sub>2</sub>); their operating characteristics, performance and maintenance costs/cycles can be predicted with confidence; they present less risk to the on-going commercial viability of the facility; and they provide additional operational flexibility beyond emissions control.

It is recognized that the auxiliary boiler approach would result in additional air emissions, including NO<sub>x</sub>, due to combustion of natural gas, however it is expected that the total NO<sub>x</sub> emissions of the auxiliary boiler(s) will not exceed 40 tons per year. If this alternative is selected, small (each greater than 10 MMBtu/hr but less than 100 MMBtu/hr input) natural gas-fired boiler(s) will be installed to provide reliability and flexibility in operations. Because each boiler will have a heat input greater than 10 MMBtu/hr and less than 100 MMBtu/hr, the boiler(s) will be subject to NSPS 40 CFR 60 Subpart Dc-Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Total potential emissions from the auxiliary boiler(s) will be less than the major modification significance levels for all PSD regulated pollutants and therefore the auxiliary boilers will not be subject to PSD permitting review.

With regard to the other NO<sub>x</sub> control options, the combined steam and water injection control technology compares favorably with the other alternatives with respect to operational and environmental considerations; however, its performance capability, economics, and commercial viability must still be established. An SCR NO<sub>x</sub> control system, although commercially proven, presents several disadvantages including additional particulates; ammonia emissions due to unreacted ammonia; an increase in the complexity of plant

operations by the addition of a sophisticated air pollution control system that requires the handling and storage of ammonia; injection nozzles subject to plugging and which can not be repaired on-line; catalyst life cycles that can not be definitively established; and most importantly, the fact that the additional backpressure it places on the CT exhaust would adversely impact the CT's efficiency/natural gas consumption, even during periods when SCR operation is not required to achieve 15 ppmvd at 15% O<sub>2</sub>.

The ability of the existing steam injection system to achieve 15 ppmvd at 15% O<sub>2</sub> in any given hour is a function of the ambient temperature and the export steam rate delivered to APP's two steam hosts. Since both of these factors can vary over a wide range and neither is entirely predictable, it is difficult to determine how many hours out of the year supplemental control of NO<sub>x</sub> will be required or exactly when it will be needed, although, it is clear that supplemental control of NO<sub>x</sub> will not be required during every operating hour of the year and maybe not even every year. This situation makes it very difficult to justify a large capital expenditure in addition to what has already been spent on the combustor development program and the combustors themselves, just to patch what may be only an intermittent event that is dependent on the weather and the growth or decline of our steam hosts' businesses. This is especially true for an expenditure such as SCR which offers no other advantages other than NO<sub>x</sub> control and has so many disadvantages associated with it.

The requested deadline extension of 15 months for meeting the 15 ppmvd NO<sub>x</sub> concentration limit will result in higher NO<sub>x</sub> emissions during the extension period due to continued operation at the present actual NO<sub>x</sub> CT exhaust concentration of less than 25 ppmvd. However, FDEP Permit AC53-208321/PSD-FL-185 authorized the use of No. 2 fuel oil for an initial 18 month period based on the anticipated unavailability of natural gas. As discussed during our meetings, APP undertook extraordinary measures to make natural gas available at the time of initial operations and therefore the firing of No. 2 fuel oil was able to be avoided. Because NO<sub>x</sub> emissions are significantly greater when fuel oil is combusted in comparison to natural gas (i.e., by a factor of almost two), the avoidance of fuel oil combustion resulted in a substantial decrease in actual NO<sub>x</sub> emissions. Therefore, on a cumulative basis, facility NO<sub>x</sub> emissions, including the deadline extension, will be well below the level originally authorized by FDEP Permit AC53-208321/PSD-FL-185 had natural gas not been available at the time of initial startup. It is also important to note that the APP facility is located in an area (Polk County) which is classified attainment for all criteria pollutants, including NO<sub>2</sub> and ozone. Prior dispersion modeling demonstrated that NO<sub>x</sub> ambient impacts will be insignificant under worst-case conditions; i.e., during oil-firing. Accordingly, ambient impacts of NO<sub>x</sub> will remain insignificant during the deadline extension period.

In summary, a 15 month extension to the current September 30, 1997 deadline is requested to allow sufficient time to evaluate the commercial potential of the combined steam and water injection NO<sub>x</sub> control technology, make a final control alternative decision based on the best available data, and then design, procure, install, start-up, shake-down and compliance test the selected alternative. APP proposes to submit its final control alternative decision, as well as a




design, procurement, and construction schedule, to the Department no later than February 28, 1998. Provided that the additional permitting required to facilitate the use of auxiliary boiler(s) is completed, the February 28, 1998 date will allow time to make a reasoned decision among the NO<sub>x</sub> control alternatives based on the best available information while also providing adequate time to implement any control alternative selected and demonstrate compliance by the final December 31, 1998 deadline. This schedule is also structured to allow APP time to obtain agreement on the final path forward from its partners, banks, EPC contractor and combustion turbine vendor. With regard to the permitting of the auxiliary boilers, it is our intent to begin this process shortly after the permit modifications requested herein have been obtained.

APP submitted an initial Title V application to the Department in October 1995. In response to Department questions, additional information regarding the Title V permit application was submitted to the Department in November 1996. APP requests that the information contained in this permit modification letter be considered as an amendment to the previously submitted Title V permit application, and that any modified terms and conditions of Permit AC53-208321/PSD-FL-185 also be included in the draft Title V permit.

A permit modification fee check in the amount of \$250.00 is attached. Since our goal is to obtain these permit amendments by April 1, 1997, I would like to schedule a meeting with the Department sometime during the first two weeks of February. I already plan to be in Florida next week and can make myself available at your convenience to discuss the ensuing permit process and answer any questions you may have on this permit amendment request. I will call you tomorrow to see if we can set a specific date and time.

Sincerely,



Bruce L. Franco, P.E.  
Executive Director

BLF/bp

Attachments

CC: SWD  
EPA  
NPS  
H. Hirst  
C. Holladay



## ATTACHMENT I

**Westinghouse  
Electric Corporation**

Generation Systems Division  
4400 Alafaya Trail  
Orlando, Florida 32826

January 30, 1997

Auburndale Power Partners, Limited Partnership  
12500 Fair Lakes Circle, Suite 200  
Fairfax, Virginia 22033

Attention: Bruce Franco

Subject: Auburndale Power Partners, Limited Partnership  
Auburndale Cogeneration Facility / 15 ppm NOx Compliance

Dear Mr. Franco:

Westinghouse Electric Corporation is supporting the Auburndale Cogeneration Facility's efforts to reduce their NOx emissions. The following is a summary of our efforts to date.

After an extensive and costly development program, Westinghouse has produced the DF-42 combustor system to meet low NOx level emission requirements. This low emissions combustor uses water or steam injection to lower NOx levels. Westinghouse has tested and evaluated the performance of the DF-42 combustor using steam injection at the Auburndale Cogeneration Facility and has found that the steam flow required to meet the 15 ppmvd at 15% O<sub>2</sub> NOx requirement is greater than originally projected.

Currently, the Auburndale plant does not produce sufficient steam to simultaneously meet the maximum export steam flow commitments and the 15 ppmvd at 15% O<sub>2</sub> NOx emissions requirement. Therefore, consideration is being given to increasing the steam generation capacity by the addition of an auxiliary boiler, utilizing a combination of water and steam injection for NOx control, or adding a selective catalytic reduction system (SCR). Westinghouse is currently performing detailed calculations to determine the extent of the steam shortage under various combinations of operating and ambient conditions.

Of these three methods, the combination of water and steam injection is expected to have a good possibility for success with relatively minor impacts on the existing plant design and operation. During the October 1996 plant outage, a water injection system was installed on the combustion turbine at Auburndale. During an initial limited test of the combined water and steam injection system in December 1996, performed at base load and at low water injection rates, combustion remained very stable, steam injection was reduced appreciably, and NOx levels below 15 ppmvd at 15% O<sub>2</sub> were achieved. However, CO emissions began to rise more rapidly than expected, as the water injection rate was increased. Although further investigation is required, the higher CO emission levels might be a result of water injection mechanical problems and may be reduced after repairs are made.

Further testing of the combined water and steam injection system cannot take place until mid-March, 2012, when the process steam flows can be interrupted to make adjustments to the water injection system. The combination of water injection and steam injection is expected to allow the export steam flow commitments and 15 ppmvd at 15% O<sub>2</sub> NO<sub>x</sub> limit to be met simultaneously. Additional testing is planned and will allow an evaluation of this expectation, as well as any impacts on CT components, plant operations, and other emissions.

We hope this information is useful. If we can be of further assistance on this matter, please feel free to contact us at any time.

Sincerely,

*B. A. Beeson for*

Ben Richardson, Principal Engineer  
Operating Plant Technical Support



# Department of Environmental Protection

*permits file*

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

August 12, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Bruce L. Franco  
Executive Director  
Auburndale Power Partners, Ltd.  
1501 Derby Avenue  
Auburndale, FL 33823

Re: Detailed Completeness Review of Initial Title V Permit Application  
File No. 1050221-002-AV  
Auburndale Cogeneration Facility, Polk County

Department of Environmental Protection  
SOUTHWEST DISTRICT  
BY

RECEIVED  
AUG 14 1996

Dear Mr. Franco:

On October 26, 1995, the Department received your application dated October 25, 1995, for the Auburndale Cogeneration Facility located at 1501 Derby Avenue, Auburndale, Polk County.

Since the time of your application, the Department made changes to the rules and the long application form, DEP Form No. 62-210.900(1). Many of the changes the Department made were in response to EPA's request in order for the State of Florida to receive 'full' Title V program approval. At the time you applied, the State of Florida was under 'interim' Title V program approval. Some of the changes that appear to have affected your application relate to the criteria for exempting emissions units and/or activities, classifying emissions units and/or activities, pollutant reporting at both the facility and emissions unit levels, and the Professional Engineer (P.E.) certification statement. Some sections of the long application form were simplified such that you may have overreported.

The major changes went into effect March 20 and 21, 1996. The new long application form, DEP Form No. 62-210.900, was effective March 21, 1996. The Chapter 62-210, F.A.C., changes went into effect March 21, 1996, and Chapter 62-213, F.A.C., changes went into effect March 20, 1996.

Mr. Bruce L. Franco  
August 12, 1996  
Page 2 of 4

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

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

1. 'Exempt,' 'Unregulated,' and 'Trivial' Emissions Units and/or Activities

You referenced items from the "List of Insignificant Source Summary for Electric Power Plants" in the attachment labeled "Auburndale Cogeneration Facility Insignificant and Exempt Source Units, document identified as DIID7.wpf." The "List of Insignificant Source Summary for Electric Power Plants," dated May 20, 1994, that was developed by the Department and industry, is outdated. However, the list will continue to be useful because new emissions units and/or activities have been identified.

You also referenced several of the full exemptions from air permitting contained in Rule 62-210.300(3)(a), F.A.C. The Department changed several of these full exemptions from air permitting. Restrictions were added to keep the listed exemptions below a level that could inadvertently trigger Title V applicability.

Currently, in order for an emissions unit and/or activity to be 'exempt' in the Title V permit, the emissions unit and/or activity can not exceed one or more of the emissions thresholds or have a unit-specific requirement (see Rule 62-213.430(6), F.A.C.).

Also, the Department has issued guidance on emissions units and/or activities that are considered 'trivial' (see enclosed DARM-PER/V-15, revised March 15, 1996). These emissions units and/or activities no longer need to be included in Title V permit applications. Many of the emissions units and/or activities included in your attachment fall into this category. 'Trivial' emissions units and/or activities will not be included in the Title V permit.

a. Please update your attachment and provide sufficient information to classify the emissions units and/or activities into the two new categories - those that are 'exempt' and those that are 'unregulated.'

To properly update the attachment you need to consider the requirements of Rule 62-213.430(6), F.A.C. If the answer to any of these questions is yes, an emissions unit and/or activity cannot be 'exempt.'

- (1) Do any of the units or activities have a unit-specific applicable requirement?
- (2) Does each unit emit or have the potential to emit equal to or greater than:
  - 1,000 pounds/year of any hazardous air pollutant (HAP);
  - 2,500 pounds/year of total HAPs; and/or
  - 5 TPY of any other regulated air pollutant, i.e., volatile organic compound (VOC)?

For example, more information is needed on "Parts cleaning and degreasing stations" and "Storage tanks < 550 gallons" in order to properly classify each as either 'unregulated' or 'exempt.'

## 2. Emissions Estimates

The Department has a responsibility to ensure, on a unit-by-unit basis, that emissions factors are reasonably representative of an emissions unit's potential emissions. Thus, you need to include with each application any source documents that provide the basis of such estimates, unless you are using AP-42 or a document that is reasonably available to the Department.

a. In your application you reference "FCG, 1995" and "Westinghouse, 1992" emission factors. If you intend to use these emissions factors, please provide a copy of these emissions factors, along with the supporting documentation on how they were determined.

3. Please submit the "CT-specific graph of the relationship between ambient temperature and heat inputs to the CT" that was required by Permit Number AC53-208321, Specific Condition Number 25.

## 4. P.E. Certification Statement

a. Since this is the initial air operation permit application, please indicate whether or not the emissions units permitted under the air construction (AC) permit were constructed in accordance with the construction permit application and AC permit. We found a comment on several exceptions noted in the ELSA (ELectronic Submission of Application). To accomplish this, please complete and submit a new P.E. certification statement page from the new long application form, DEP Form No. 62-210.900, effective March 21, 1996 (enclosed), and list any exceptions.

Mr. Bruce L. Franco  
August 12, 1996  
Page 4 of 4

5. Acid Rain Requirements

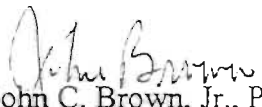
Department records indicate Mr. Donald W. Fields was the Responsible Official and the Designated Representative for Acid Rain purposes. Recently, the Department received a letter dated April 26, 1996, indicating that the authorized representative for the facility is now Mr. Bruce L. Franco, Executive Director.

a. Is Mr. Donald W. Fields still the Designated Representative? If not, you need to update this change with EPA and provide a copy to us.

**The Department should receive a response from you within 90 (ninety) days of receipt of this letter, unless you (the applicant) request additional time under Rule 62-213.420(1)(b)6., F.A.C.**

If you should have any questions, please contact Scott Sheplak or me at (904) 488-1344.

Sincerely,

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

JCB/ss/k

Enclosures

copy to:

Thomas W. Davis, P.E., Environmental Consulting & Technology, Inc.

Bill Thomas, Southwest District Office ✓

Memorandum

Florida Department of  
Environmental Protection

DARM-PER/V-15  
REVISED

TO: District Air Program Administrators  
County Air Program Administrators  
Bureau of Air Regulation Engineers

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

DATE: March 15, 1996

SUBJECT: Revision to Trivial List of Activities at a  
Title V Facility

This guidance replaces the February 12, 1996 Guidance, DARM-PER/V-15. The only change is the rule siting in text of document.

Attachment A of a July 3, 1995 Environmental Protection Agency (EPA) memorandum, "Initial Operating Permit Application Compliance Certification Policy," commonly called the White Paper, attached, comprises a listing of trivial activities.

With one exception, Title V permits will not require that these activities be listed in the Title V permit applications or the Title V permits. These activities are treated as if they emit no air pollutants.

The EPA listing conditionally includes painting under the category of plant maintenance and upkeep activities (page 1) as a trivial activity. If painting activities at a Title V source in Florida result in emissions that are below the thresholds for exemption in Rule 62-213.430(6)(b), F.A.C., they may be included in the application as exemptible activities. Otherwise, they should be listed, but not quantified, as unregulated activities, provided the painting activities are not subject to an applicable requirement. If the painting activities result in emissions that trigger applicable requirements, they must be reported and quantified.

HLR/jb/k

Attachment



knows or has reason to believe would be emitted in an amount equal to or greater than:

a. 5.0 tons per year for carbon monoxide, nitrogen oxides, particulate matter, sulfur dioxide, and volatile organic compounds; or

b. 500 pounds per year for lead and lead compounds expressed as lead.

4. Each Title V source that emits or has the potential to emit any hazardous air pollutant or total hazardous air pollutants in a major amount as set forth in Rule 62-213.(3)(c)1., F.A.C., shall identify, for each emissions unit, each such pollutant which the applicant knows or has reason to believe would be emitted in an amount equal to or greater than:

a. 1,000 pounds per year for each hazardous air pollutant.

b. 2,500 pounds per year for total hazardous air pollutants.

5. Title V sources which are also subject to the Federal Acid Rain Program shall report all emissions of sulfur dioxide and nitrogen oxides from any acid rain unit in accordance with this subsection or the reporting requirements of the Federal Acid Rain Program, whichever are more stringent.

(d) Process and operating information;

(e) Control equipment information;

(f) Calculations;

(g) Identification of all applicable requirements and test methods;

(h) Limitations on source operation affecting emissions;

(i) Proposed alternate methods of operation;

(j) Compliance statement;

(k) Compliance schedule and methodology, if applicable;

(l) Reporting and recordkeeping requirements;

(m) A list of emissions units or activities for which exemption is requested because of size or production rate and any information needed to demonstrate

that the units or activities qualify for exemption under the provisions of Rule 62-213.430(6), F.A.C.

(4) Certification by Responsible Official. In addition to the professional engineering certification required for applications by Rule 62-4.050(3), F.A.C., any application form, report, compliance statement, compliance plan and compliance schedule submitted pursuant to this chapter shall contain a certification signed by a responsible official that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Specific Authority: 403.061, 403.087, F.S.

Law Implemented: 403.061, 403.0872, F.S.

History: New 11-28-93; Amended 4-17-94; Formerly 17-213.420; Amended 11-23-94, 4-2-95, 10-11-95, 3-13-96, 3-20-96.

#### 62-213.430 Permit Issuance, Renewal, and Revision.

(1) Action on Application. Except for those applications submitted pursuant to Rule 62-213.420(1)(a)1., F.A.C., the Department shall issue a draft permit or a determination that the requested permit be denied within 90 days after receipt of the latest of: the application; the last item of information requested pursuant to Rule 62-213.420(1)(b), F.A.C.; or, a written request to process the application without the requested information. The Department shall issue a permit, permit revision or renewal only after all of the following conditions have been met:

(a) The applicant has submitted a complete application, properly certified by a responsible official as required by Rule 62-213.420(4), F.A.C., and either all corrected and supplemental information requested or a written request to process the application without such information pursuant to Rule 62-213.420(1)(b)3. and 4., F.A.C.;

(b) The Department and the applicant have complied with the requirements for notice and public participation described in Rules 62-103.150 and 62-210.350, F.A.C.;

(c) The Department has complied with the requirements for notifying and responding to affected states and approved local air programs pursuant to Rule 62-213.450(2) and (3), F.A.C.;

(d) The Department has provided EPA with a copy of the draft permit, proposed permit and any notices required under Rule 62-213.450(1) and (2), F.A.C., and has not received written EPA objection to issuance of the permit within the time period specified in Rule 62-213.450(4). If the Department receives timely EPA objection, the Department shall not take final action until the Department receives written notice that the objection is resolved or withdrawn;

(e) The Department has provided a statement to EPA setting forth the basis for the draft permit conditions, including references to the applicable statutory or regulatory provisions.

(2) Permit Denial. If the Department proposes to deny the permit application, the Department shall provide the applicant an explanation of the denial in accordance with Rule 62-4.070(6), F.A.C.

(3) Permit Renewal and Expiration. Permits being renewed are subject to the same requirements that apply to permit issuance at the time of application for renewal. Permit renewal applications shall contain that information identified in Rules 62-210.900(1) and 62-213.420(3), F.A.C. Unless a Title V source submits a timely application for permit renewal in accordance with the requirements of Rule 62-4.090(1), F.A.C., the existing permit shall expire and the source's right to operate shall terminate.

(4) Permit Revision Procedures. Permit revisions shall meet all requirements of this chapter, including those for content of applications, public participation, review by approved local air programs and affected States, and review by EPA, as they apply to permit

issuance and permit renewal, except that permit revisions for those activities implemented pursuant to Rule 62-213.412, F.A.C., need not meet the requirements of Rule 62-213.430(1)(b), F.A.C. The Department shall require permit revision in accordance with the provisions of Rule 62-4.080, F.A.C., and 40 CFR 70.7(f), whenever any source becomes subject to any condition listed at 40 CFR 70.7(f)(1), hereby adopted and incorporated by reference.

(5) EPA Recommended Actions. Within 90 days after receipt of notification from EPA that cause exists to modify, suspend, or revoke a permit, the Department shall investigate and determine whether cause exists pursuant to 40 CFR 70.7(f)(1), hereby adopted and incorporated by reference, and shall forward the determination to EPA. If cause exists, the Department shall proceed according to the requirements of Rule 62-4.080 or 62-4.100, F.A.C., and 40 CFR 70.7(f) to modify, suspend, or revoke the permit.

**(6) Exemption of Emissions Units or Pollutant-Emitting Activities.**

(a) All requests for exemption of emissions units or activities made pursuant to Rule 62-213.420(3)(m), F.A.C., shall be processed in conjunction with the permit, permit renewal or permit revision application submitted pursuant to this chapter. Exemptions shall be approved by the Department consistent with the provisions of Rule 62-4.040(1)(b), F.A.C. Emissions units or activities which are added to a Title V source after issuance of a permit under this chapter shall be incorporated into the permit at its next renewal, provided such emissions units or activities have been exempted from the requirement to obtain an air construction permit and also qualify for exemption from permitting pursuant to this rule.

(b) No exemption shall be granted to any emissions unit or activity if:

1. Such unit or activity would be subject to any unit-specific applicable requirement;

2. Such unit or activity, in combination with other units and activities proposed for exemption, would cause the facility to exceed any major source threshold(s) as defined in Rule 62-213.420(3)(c)1., F.A.C., unless it is acknowledged in the permit application that such units or activities would cause the facility to exceed such threshold(s); or

3. Such unit or activity would emit or have the potential to emit:

a. 500 pounds per year or more of lead and lead compounds expressed as lead;

b. 1,000 pounds per year or more of any hazardous air pollutant;

c. 2,500 pounds per year or more of total hazardous air pollutants; or

d. 5.0 tons per year or more of any other regulated pollutant.

Specific Authority: 403.061, 403.087, F.S.

Law Implemented: 403.031, 403.061, 403.087, 403.0872, F.S.

History: New 11-28-93, Formerly 17-213.430; Amended 1-23-94, 3-13-96, 3-20-96.

#### 62-213.440 Permit Content.

(1) Standard Permit Requirements. Each permit issued under this chapter shall incorporate all applicable requirements for the Title V source and for each method of operation proposed by the applicant and approved by the Department. Each such permit shall include all emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements, with citation to the Department's rule authority for each term or condition, and identification of any difference in form from the applicable requirement upon which the term or condition is based. Emissions units or pollutant-emitting activities within a Title V source exempted by Rule 62-210.300(3), F.A.C., or by specific exemption

granted by the Department consistent with Rule 62-4.040(1)(b), F.A.C., shall be identified.

(a) Permit Duration. Permits for sources subject to the Federal Acid Rain Program shall be issued for terms of five years. Operation permits for Title V sources may not be extended as provided in Rule 62-4.080(3), F.A.C., if such extension will result in a permit term greater than five years.

(b) Monitoring and Related Recordkeeping and Reporting Requirements.

1. Each permit shall specify the following requirements with respect to monitoring:

a. Emissions monitoring and analysis procedures or test methods specified by applicable requirements;

b. Where the applicable requirement does not specify a method for periodic testing or instrumental or noninstrumental monitoring, periodic monitoring sufficient to yield reliable data and demonstrate compliance with the permit. Such monitoring requirements shall assure use of recordkeeping terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement; and

c. Requirements concerning the use, maintenance, and installation of monitoring equipment or methods.

2. The permit shall incorporate all applicable recordkeeping requirements including:

a. Records of monitoring information that specify the date, place, and time of sampling or measurement and the operating conditions at the time of sampling or measurement, the date(s) analyses were performed, the company or entity that performed the analyses, the analytical techniques or methods used, and the results of such analyses;

b. Retention of records of all monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original

## ATTACHMENT A

### LIST OF ACTIVITIES THAT MAY BE TREATED AS "TRIVIAL"

The following types of activities and emissions units may be presumptively omitted from part 70 permit applications. Certain of these listed activities include qualifying statements intended to exclude many similar activities.

Combustion emissions from propulsion of mobile sources, except for vessel emissions from Outer Continental Shelf sources.

Air-conditioning units used for human comfort that do not have applicable requirements under title VI of the Act.

Ventilating units used for human comfort that do not exhaust air pollutants into the ambient air from any manufacturing/industrial or commercial process.

Non-commercial food preparation.

Consumer use of office equipment and products, not including printers or businesses primarily involved in photographic reproduction.

Janitorial services and consumer use of janitorial products.

Internal combustion engines used for landscaping purposes.

Laundry activities, except for dry-cleaning and steam boilers.

Bathroom/toilet vent emissions.

Emergency (backup) electrical generators at residential locations.

Tobacco smoking rooms and areas.

Blacksmith forges.

Plant maintenance and upkeep activities (e.g., grounds-keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots) provided these activities are not conducted as part of a manufacturing process, are not related to the source's primary business activity, and not otherwise triggering a permit modification.<sup>4</sup>

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<sup>4</sup>Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must still get a permit if

Repair or maintenance shop activities not related to the source's primary business activity, not including emissions from surface coating or de-greasing (solvent metal cleaning) activities, and not otherwise triggering a permit modification.

Portable electrical generators that can be moved by hand from one location to another.<sup>5</sup>

Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning or machining wood, metal or plastic.

Brazing, soldering and welding equipment, and cutting torches related to manufacturing and construction activities that do not result in emission of HAP metals.<sup>6</sup>

Air compressors and pneumatically operated equipment, including hand tools.

Batteries and battery charging stations, except at battery manufacturing plants.

Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP.<sup>7</sup>

Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.

Equipment used to mix and package, soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are utilized.

Drop hammers or hydraulic presses for forging or metalworking.

Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.

Vents from continuous emissions monitors and other analyzers.

otherwise required.

<sup>5</sup> "Moved by hand" means that it can be moved without the assistance of any motorized or non-motorized vehicle, conveyance, or device.

<sup>6</sup> Brazing, soldering and welding equipment, and cutting torches related to manufacturing and construction activities that emit HAP metals are more appropriate for treatment as insignificant activities based on size or production level thresholds. Brazing, soldering, welding and cutting torches directly related to plant maintenance and upkeep and repair or maintenance shop activities that emit HAP metals are treated as trivial and listed separately in this appendix.

<sup>7</sup> Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids should be based on size limits such as storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.

Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.

Hand-held applicator equipment for hot melt adhesives with no VOC in the adhesive formulation.

Equipment used for surface coating, painting, dipping or spraying operations, except those that will emit VOC or HAP.

CO<sub>2</sub> lasers, used only on metals and other materials which do not emit HAP in the process.

Consumer use of paper trimmers/binders.

Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.

Salt baths using nonvolatile salts that do not result in emissions of any regulated air pollutants.

Laser trimmers using dust collection to prevent fugitive emissions.

Bench-scale laboratory equipment used for physical or chemical analysis, but not lab fume hoods or vents.<sup>1</sup>

Routine calibration and maintenance of laboratory equipment or other analytical instruments.

Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.

Hydraulic and hydrostatic testing equipment.

Environmental chambers not using hazardous air pollutant (HAP) gasses.

Shock chambers.

Humidity chambers.

Solar simulators.

Fugitive emission related to movement of passenger vehicles, provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.

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<sup>1</sup> Many lab fume hoods or vents might qualify for treatment as insignificant (depending on the applicable SIP) or be grouped together for purposes of description.

Process water filtration systems and demineralizes.

Demineralized water tanks and demineralizer vents.

Boiler water treatment operations, not including cooling towers.

Oxygen scavenging (de-aeration) of water.

Ozone generators.

Fire suppression systems.

Emergency road flares.

Steam vents and safety relief valves.

Steam leaks.

Steam cleaning operations.

Steam sterilizers.

4. Professional Engineer Statement:

*I, the undersigned, hereby certify, except as particularly noted herein\*, that:*

*(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and*

*(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.*

*If the purpose of this application is to obtain a Title V source air operation permit (check here [ ] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.*

*If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [ ] if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.*

*If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.*

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

(seal)

\* Attach any exception to certification statement.





## Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

### PERMITTEE:

Auburndale Power Partners  
12500 Fair Lakes Circle, Ste. 420  
Fairfax, Virginia 22033

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: Oct. 30, 1995  
County: Polk  
Latitude/Longitude: 28°03'15"N  
81°48'20"W  
Project: 156 MW Combined Cycle  
System

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 or on file with the Department and made a part hereof and specifically described as follows:

Auburndale Power Partners proposes to operate a combined cycle system consisting of one combustion turbine, one steam turbine, and one heat recovery steam generator and ancillary equipment. This total system is rated at 156 MW output nominal capacity (52 MW output from the steam turbine generator). This facility is located on County Road 544-A (Derby Avenue) in Auburndale, Polk County, Florida. The UTM coordinates are Zone 17, 420.8 km East and 3103 km North.

The 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. Auburndale Power Partners (APP) application received February 10, 1992.
2. Department's letter dated March 10, 1992.
3. APP's letter received April 28, 1992.
4. APP's letter received May 19, 1992.
5. APP's letter received June 18, 1992.

PERMITTEE:  
Auburndale Power Partners

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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.

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**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.

PERMITTEE:  
Auburndale Power Partners

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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 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- (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;

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- 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:

Emission Limits

1. The maximum allowable emissions from this source shall not exceed the emission rates listed in Table 1.
2. Visible emissions shall not exceed 20% opacity. At full load, visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year).
4. This source is allowed to use natural gas as the primary fuel and low sulfur No. 2 distillate oil as the secondary fuel (with the conditions specified in Specific Condition No. 5 below).
5. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:
  - a) Maximum low sulfur No. 2 fuel oil consumption for the facility shall be allowed for the equivalent of 18 months (13,140 hours) of the initial facility operation, or until the Florida Gas Transmission (FGT) Phase III expansion is complete and natural gas is available; whichever occurs first. The unit start-up is expected by 10/94 and natural gas would be used by 4/96.
  - b) Once the FGT Phase III expansion is complete and natural gas is available to the facility, low sulfur No. 2 fuel oil firing shall be limited to 400 hours annually.

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**SPECIFIC CONDITIONS:**

- c) Maximum sulfur content in No. 2 fuel oil shall not exceed 0.05 percent by weight.
  - d) The maximum heat input of 1,170 MMBtu/hr LHV at ISO conditions (base load) for distillate fuel oil No. 2.
  - e) The maximum heat input of 1,214 MMBtu/hr LHV at ISO conditions (base load) for natural gas.
6. Any change in the method of operation, equipment or operating hours shall be submitted to DER's Bureau of Air Regulation.
7. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility may be included in the operating permit.

Compliance Determination

8. Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, and VOC standards shall be determined (while operating at 95-100% of the permitted maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July, 1991 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
- Method 25A. Determination of the Volatile Organic Compounds Emissions from Stationary Sources

Other DER approved methods may be used for compliance testing after prior Departmental approval.

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

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10. Compliance with the SO<sub>2</sub> emission limit can also be determined by calculations based on fuel analysis using ASTM D4292 for the sulfur content of liquid fuels and ASTM D4084-82 or D3246-81 for sulfur content of gaseous fuel.

11. Trace elements of Beryllium (Be) shall be tested during initial compliance test using EMTIC Interim Test Method. As an alternative, Method 104 may be used; or Be may be determined from fuel sample analysis using either Method 7090 or 7091, and sample extraction using Method 3040 as described in the EPA solid waste regulations SW 846.

12. Mercury (Hg) shall be tested during initial compliance test using EPA Method 101 (40 CFR 61, Appendix B) or fuel sampling analysis using methods acceptable to the Department.

13. During performance tests, to determine compliance with the proposed NO<sub>x</sub> standard, measured NO<sub>x</sub> emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_x \text{ obs}) \left( \frac{P_{\text{ref}}}{P_{\text{obs}}} \right)^{0.5} e^{19 (H_{\text{obs}} - 0.00633)} \left( \frac{288^\circ K}{T_{\text{AMB}}} \right)^{1.53}$$

where:

NO<sub>x</sub> = Emissions of NO<sub>x</sub> at 15 percent oxygen and ISO standard ambient conditions.

NO<sub>x</sub> obs = Measured NO<sub>x</sub> emission at 15 percent oxygen, ppmv.

P<sub>ref</sub> = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P<sub>obs</sub> = Measured combustor inlet absolute pressure at test ambient pressure.

H<sub>obs</sub> = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T<sub>AMB</sub> = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in writing in advance of the compliance test(s). The sources shall

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operate between 95% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature. Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

15. The permittee shall leave sufficient space suitable for future installation of SCR equipment should the facility be unable to meet the NO<sub>x</sub> standards, if required.

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

17. A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. While steam injection is being utilized for NO<sub>x</sub> control, the steam to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

18. Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel delivery receipts. The records of fuel oil usage shall be kept by the company for a two-year period for regulatory agency inspection purposes. For sulfur dioxide, periods of excess emissions shall be reported if the fuel being fired in the gas turbine exceeds 0.05 percent sulfur by weight.

Rule Requirements

19. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-210, 212, 296, 297 and 17-4, Florida Administrative Code and 40 CFR (July, 1991 version).

20. The sources shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 17-296.800(2)(a), Standards of Performance for Stationary Gas Turbines.

21. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210.300(1)).



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22. This source shall be in compliance with all applicable provisions of F.A.C. Rules 17-210.650: Circumvention; 17-2.250: Excess Emissions; 17-296.800: Standards of Performance for New Stationary Sources (NSPS); 17-297: Stationary Point Source Emission Test Procedures; and, 17-4.130: Plant Operation-Problems.

23. If construction does not commence within 18 months of issuance of this permit, then the permittee shall obtain from DER a review and, if necessary, a modification of the control technology and allowable emissions for the unit(s) on which construction has not commenced (40 CFR 52.21(r)(2)).

24. Quarterly excess emission reports, in accordance with the July 1, 1991 version of 40 CFR 60.7 and 60.334 shall be submitted to DER's Southwest District office.

25. Literature on equipment selected shall be submitted as it becomes available. A CT-specific graph of the relationship between NOx emissions and steam injection and also another of ambient temperature and heat inputs to the CT shall be submitted to DER's Southwest District office and the Bureau of Air Regulation.

26. Construction period fugitive dust emissions shall be minimized by covering or watering dust generation areas.

27. 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, nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

28. 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).

29. 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

PERMITTEE:  
Auburndale Power Partners

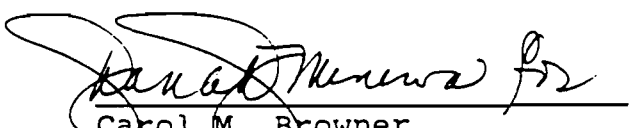
Permit Number: AC 53-208321  
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**SPECIFIC CONDITIONS:**

noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 14<sup>th</sup> day  
of December, 1992

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

  
Carol M. Browner  
Secretary

Auburndale Power Partners - AC53-208321 (PSD-FL-185)

TABLE 1 - ALLOWABLE EMISSION RATES

Pollutant	Fuel <sup>A</sup>	Allowable Emission Standard/Limitation	Basis
NO <sub>x</sub>	Gas	15 ppmvd @ 15% O <sub>2</sub> & ISO ( 78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> & ISO (131.0 lbs/hr; 573.8 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	7.5 lbs/hr; 32.9 TPY	BACT
	Oil	14 lbs/hr; 61.3 TPY	BACT
Opacity	Gas	10% opacity <sup>D</sup>	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl.
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl.
As	Oil	1.61 x 10 <sup>-4</sup> lb/MMBtu (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> lb/MMBtu (0.04 lb/hr; 0.17 TPY)	Appl.
Be	Oil	2.0 x 10 <sup>-6</sup> lb/MMBtu (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> lb/MMBtu (0.13 lb/hr; 0.510 TPY)	BACT

A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil.

Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.

B) The NO<sub>x</sub> maximum limit will be lowered to 15 ppm by 9/30/97 (about 18 months after natural gas is first fired) using appropriate combustion technology improvements or SCR.

C) 21 ppmvd at minimum load.  
15 ppmvd at base load.

D) 10% opacity at full load conditions.

Best Available Control Technology (BACT) Determination  
Auburndale Power Partners  
Polk County

The applicant proposes to install a combustion turbine generator at their facility in Polk County. The generator system will consist of one nominal 104 megawatt (MW) combustion turbine (CT), with exhaust through heat recovery steam generator (HRSG), which will be used to power a nominal 52 MW steam turbine.

The combustion turbine (Westinghouse 501D) will be capable of combined cycle operation. The applicant requested that the combustion turbine use oil (0.05% S by weight) for the first eighteen (18) months; thereafter, they will use natural gas. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity factor and type of fuel fired to be as follows:

Pollutant	Emissions (TPY)		PSD Significant Emission Rate (TPY)
	Oil	Gas/Oil	
NO <sub>x</sub>	1,007	573.8	40
SO <sub>2</sub>	307	175.2	40
PM/PM <sub>10</sub>	161	46	25/15
CO	320	190	100
VOC	44	27	40
H <sub>2</sub> SO <sub>4</sub>	39	23	7
Be	0.01	0.01	0.0004
As	0.05	0.05	0.1
Pb	0.51	0.51	0.6

Florida Administrative Code (F.A.C.) Rule 17-212.400 requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

February 2, 1992

BACT Determination Requested by the Applicant

<u>Pollutant</u>	<u>Proposed Limits</u>
NO <sub>x</sub>	25 ppmvd @ 15% O <sub>2</sub> (natural gas burning) 42 ppmvd @ 15% O <sub>2</sub> for oil firing
SO <sub>2</sub>	0.05% sulfur by weight
CO, VOC	Combustion Control
PM/PM <sub>10</sub>	Combustion Control

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

- o Combustion Products (e.g., particulates). Controlled generally by good combustion of clean fuels.
- o Products of Incomplete Combustion (e.g., CO). Control is largely achieved by proper combustion techniques.
- o Acid Gases (e.g., NO<sub>x</sub>). Controlled generally by gaseous control devices.

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

#### BACT POLLUTANT ANALYSIS

##### COMBUSTION PRODUCTS

###### **Particulate Matter (PM/PM<sub>10</sub>)**

The design of this system ensures that particulate emissions will be minimized by combustion control and the use of clean fuels. The particulate emissions from the combustion turbine when burning natural gas and fuel oil will not exceed 0.013 and 0.047 lb/MMBtu, respectively. The Department accepts the applicant's proposed control for particulate matter and heavy metals.

###### **Lead, Arsenic, Beryllium (Pb, As, Be)**

The Department agrees with the applicant's rationale that there are no feasible methods to control lead, beryllium, and arsenic; except by limiting the inherent quality of the fuel.

Although the emissions of these toxic pollutants could be controlled by particulate control devices, such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of these pollutants.

##### PRODUCTS OF INCOMPLETE COMBUSTION

###### **Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)**

The emissions of carbon monoxide exceed the PSD significant emission rate of 100 TPY. The applicant has indicated that the carbon monoxide emissions from the proposed turbine is on exhaust concentrations of 15 ppmvd for natural gas firing and 25 ppmvd for fuel oil firing.

The majority of BACT emissions limitations have been based on combustion controls for carbon monoxide and volatile organic compounds minimization, additional control is achievable through the use of catalytic oxidation. Catalytic oxidation is a postcombustion control that has been employed in CO nonattainment areas where regulations have required CO emission levels to be less than those associated with wet injection. These installations have been required to use LAER technology and typically have CO limits in the 10-ppm range (corrected to dry conditions).

In an oxidation catalyst control system, CO emissions are reduced by allowing unburned CO to react with oxygen at the surface of a precious metal catalyst such as platinum. Combustion of CO starts at about 300°F, with efficiencies above 90 percent occurring at temperatures above 600°F. Catalytic oxidation occurs at temperatures 50 percent lower than that of thermal oxidation, which reduces the amount of thermal energy required. For CT/HRSG combinations, the oxidation catalyst can be located directly after the CT or in the HRSG. Catalyst size depends upon the exhaust flow, temperature, and desired efficiency.

Due to the oxidation of sulfur compounds and excessive formation of H<sub>2</sub>SO<sub>4</sub> mist emissions, oxidation catalyst are not considered to be technically feasible for gas turbines fired with fuel oil. Catalytic oxidation has not been demonstrated on a continuous basis when using fuel oil.

Use of oxidation catalyst technology would be feasible for natural gas-fired unit; however, the cost effectiveness of \$7,099 per ton of CO removed will have an economic impact on this project.

The Department is in agreement with the applicant's proposal of combustor design and good operating practices as BACT for CO and VOCs for this cogeneration project.

#### ACID GASES

##### Nitrogen Oxides (NO<sub>x</sub>)

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<sub>x</sub> control.

The applicant has stated that BACT for nitrogen oxides will be met by using steam injection and advanced combustor design to limit emissions to 25 ppmvd (corrected to 15% O<sub>2</sub>) when burning natural gas and 42 ppmvd (corrected to 15% O<sub>2</sub>) when burning fuel oil.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NO<sub>x</sub> emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NO<sub>x</sub> emissions. The SCR process combines vaporized ammonia with NO<sub>x</sub> in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NO<sub>x</sub> with a new catalyst. As the catalyst ages, the maximum NO<sub>x</sub> reduction will decrease to approximately 86 percent.

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

- a) Reduced power output.
- b) Ammonia slip.
- c) Disposal of hazardous waste generated (spent catalyst).
- d) A total SCR energy penalty of 14,911 MMBtu/yr, which is equivalent to the use of 14.2 million ft<sup>3</sup> of natural gas annually, based on a gas heating value of 1,050 Btu per ft<sup>3</sup>.
- e) Since several schools are located within close proximity to the site, the Polk County Planning Commission and the school boards have expressed concern over the potential for ammonia (NH<sub>3</sub>) exposure to high concentration and storage, as well.
- f) Ammonium bisulfate and ammonium sulfate particulate emissions (ammonium salts) due to the reaction of NH<sub>3</sub> with SO<sub>3</sub> present in the exhaust gases.
- g) Cost effectiveness for the application of SCR technology to the Auburndale cogeneration project was considered to be \$6,900 per ton of NO<sub>x</sub> removed.

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

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

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



For fuel oil firing, the cost associated with controlling NO<sub>x</sub> emissions must take into account the potential operating problems that can occur with using SCR in the oil firing mode.

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

The latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NO<sub>x</sub> injection ratio. For natural gas firing operation NO<sub>x</sub> emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater injection ratio. By lowering the injection ratio for oil firing, testing has indicated that NO<sub>x</sub> can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases. Based on this strategy SCR has been both proposed and established as BACT for oil fired combined cycle facilities with NO<sub>x</sub> 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 cost (operating plus amortized capital cost) to install SCR for this project at 100 percent capacity factor is \$2,283,326. Taking into consideration the total annual cost, a cost/benefit analysis of using SCR can now be developed.

Based on the information supplied by the applicant, it is estimated that the maximum annual NO<sub>x</sub> emissions using steam injection and advanced combustor design will be 574 tons/year. Assuming that SCR would reduce the NO<sub>x</sub> emissions by 65%, about 201 tons of NO<sub>x</sub> would be emitted annually. When this reduction (373 TPY) is taken into consideration with the total levelized annual cost of \$2,283,326; the cost per ton of controlling NO<sub>x</sub> is \$6,121. This calculated cost is higher than has previously been approved as BACT.

A review of the latest DER BACT determinations show limits of 15 ppmv (natural gas) using low-NO<sub>x</sub> burn technology. Based on the equipment selected, the applicant could not achieve that limit (15 ppmv) due to the fact that it is technically infeasible since their vendor, Westinghouse, does not presently offer this technology. The applicant and their CT vendor, Westinghouse, have agreed to lower NO<sub>x</sub> to 15 ppm by 9/30/97. This lower NO<sub>x</sub> limit will be

achieved by application of low-NO<sub>x</sub> burners or SCR. Therefore, the Department has accepted the steam injection and advanced combustor design as BACT for a limited time (up to 9/30/97).

**Sulfur Dioxide(SO<sub>2</sub>) and Sulfuric Acid Mist (H<sub>2</sub>SO<sub>4</sub>)**

The applicant has stated that sulfur dioxide (SO<sub>2</sub>) and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) emissions when firing fuel oil will be controlled by lowering the operating time to 400 hours/year per unit and the fuel oil sulfur content to a maximum of 0.05 % by weight. This will result in an annual emission rate of 175 tons SO<sub>2</sub> per year and 23 tons H<sub>2</sub>SO<sub>4</sub> mist per year.

In accordance with the "top down" BACT review approach, only two alternatives exist that would result in more stringent SO<sub>2</sub> emissions. These include the use of a lower sulfur content fuel oil or the use of wet lime or limestone-based scrubbers, otherwise known as flue gas desulfurization (FGD).

In developing the NSPS for stationary gas turbines, EPA recognized that FGD technology was inappropriate to apply to these combustion units. EPA acknowledged in the preamble of the proposed NSPS that "Due to the high volumes of exhaust gases, the cost of flue gas desulfurization (FGD) to control SO<sub>2</sub> emissions from stationary gas turbines is considered unreasonable." (23). EPA reinforced this point when, later on in the preamble, they stated that "FGD... would cost about two to three times as much as the gas turbine." (23). The economic impact of applying FGD today would be no different.

Furthermore, the application of FGD would have negative environmental and energy impacts. Sludge would be generated that would have to be disposed of properly, and there would be increased utility (electricity and water) costs associated with the operation of a FGD system. Finally, there is no information in the open literature to indicate that FGD has ever been applied to stationary gas turbines burning distillate oil.

The elimination of flue gas control as a BACT option then leaves the use of low sulfur fuel oil as the next option to be investigated. Auburndale Power Partners, as stated above, has proposed the use of No. 2 fuel oil with a 0.05% sulfur by weight as BACT for this project. The Department accepts their proposal as BACT for this project.

BACT Determination by DER

NO<sub>x</sub> Control

The information that the applicant presented and Department calculations indicates that the cost of controlling NO<sub>x</sub> (\$6,900/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<sub>x</sub> control is not justifiable as BACT at this time.

A review of the permitting activities for combined cycle proposals across the nation indicates that SCR has been required and most recently proposed for installations with a variety of operating conditions (i.e., natural gas, fuel oil, 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 steam injection and advanced combustor design as BACT for a limited time (up to 9/30/97).

The Department will revise and lower the allowable BACT limit for this project no later than 9/30/97. It is the Department's understanding that Westinghouse will develop new combustor technology within this period. If the 15 (gas)/42 (oil) ppmvd emission rates cannot be met by September 30, 1997, SCR will be installed. Therefore, the permittee shall install a duct module suitable for future installation of SCR equipment.

SO<sub>2</sub> Control

BACT for sulfur dioxide is the burning of fuel oil No. 2 with 0.05% sulfur content by weight.

VOC and CO Control

Combustion control will be considered as BACT for CO and VOC when firing natural gas.

Other Emissions Control

The emission limitations for PM and PM<sub>10</sub>, Be, Pb, and As are based on previous BACT determinations for similar facilities.

The emission limits for Auburndale Power Partners project are thereby established as follows:

Pollutant	Emission Standards/Limitations		Method of Control
	Oil (a)	Gas (b)	
NO <sub>x</sub>	42 ppmv	25 ppmv (c) 15 ppmv	Steam Injection
CO	73 lbs/hr	44 lbs/hr	Combustion
PM & PM10	37 lbs/hr	10 lbs/hr	Combustion
SO <sub>2</sub>	70 lbs/hr	40 lbs/hr	No. 2 Fuel Oil (0.05% S)
H <sub>2</sub> SO <sub>4</sub>	14 lbs/hr	7.5 lbs/hr	No. 2 Fuel Oil (0.05% S)
VOC	10 lbs/hr	6 lbs/hr	Combustion
Pb	0.13 lb/hr		Fuel Quality
As	0.20 lb/hr		Fuel Quality
Be	0.003 lb/hr		Fuel Quality

- (a) No. 2 fuel oil burning for the first eighteen (18) months of operation. Max. 0.05% S by weight.
- (b) Natural gas (8360 hours per year), Fuel oil (400 hours per year).
- (c) Initial NO<sub>x</sub> emission rates for natural gas firing shall not exceed 25 ppm at 15% oxygen on a dry basis. The permittee shall achieve NO<sub>x</sub> emissions of 15 ppm at 15% oxygen at the earliest achievable date based on steam injection technology or any other technology available, but no later than 9/30/97.

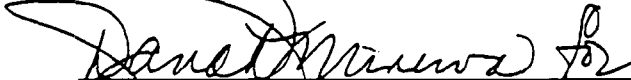
Details of the Analysis May be Obtained by Contacting:

Preston Lewis, BACT Coordinator  
Department of Environmental Regulation  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Recommended by:

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

Approved by:

  
Carol M. Browner, Secretary  
Dept. of Environmental Regulation

December 7, 1992  
Date

December 14, 1992  
Date

cum  
fe

**AUBURNDALE POWER PARTNERS,  
LIMITED PARTNERSHIP**

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January 26, 1995

Florida Dept. of Environmental Protection  
Southwest District  
3804 Coconut Palm Drive  
Tampa, FL 33619

**RECEIVED**  
JAN 30 1995

Depart. of Environmental Protection  
SOUTHWEST DISTRICT  
BY \_\_\_\_\_

**Re: Quarterly Summary and Excess Emission Report  
Auburndale Power Partners, Limited Partnership  
Permit AC 53-208321; PSD-FL-185 40TPA53022101**

Dear Sir or Madam:

Pursuant to specific condition 24 of the referenced permit, please find the enclosed Quarterly Summary and Excess Emission Report for the fourth quarter of 1994 (October-December). The first two items below are referenced in the applicable reports:

1. The Instrument Up/Down Report for NO<sub>x</sub>, CO, and O<sub>2</sub> indicate a downtime of one minute at 1:59 on October 30, 1994. This represents the time when clocks were reset to end the daylight saving time and was not a true downtime.
2. During December 20-23 and 28-30 our CEMS vendor was on-site installing a new computer for compliance with 40 CFR Part 75. This installation generated the downtime indicated in the Instrument Up/Down Report for NO<sub>x</sub>, CO, and O<sub>2</sub>. Excess emissions for all channels were also indicated during this period. These are false emissions generated by upsets in the computer during installation.
3. The summary reports for all reporting parameters are attached as Appendix A. According to 40 CFR Part 60.7(d)(1), excess emission reports need not be submitted if the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time and CMS downtime is less than 5 percent of the total operating time. Although this condition is met for NO<sub>x</sub> ppm corrected to 15% O<sub>2</sub>, NO<sub>x</sub> in lbs/hr, NO<sub>x</sub> at ISO conditions, and CO lbs/hr, we are submitting both the summary report and excess emissions report for all the reporting parameters. Please indicate if in the future you want submission of only the summary report as specified in 40 CFR Part 60.7(d)(1).

**AUBURNDALE POWER PARTNERS,  
LIMITED PARTNERSHIP**

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4. Mr. Robert Soich, Engineer II, FDEP, granted an extension for conducting the Calibration Gas Audit for the reporting period until the third week of January, 1995. Appendix D contains a copy of the conversation record form completed by Mr. Soich when granting the extension. The Calibration Gas Audit was conducted on January 12, 1995 by Pace Inc. Results from the Calibration Gas Audit are attached as Appendix C.

If you have any question regarding the information submitted, do not hesitate to contact me at your earliest convenience.

Sincerely,



David K. Sanches  
Plant Manager

cc: Don Fields, APP, Bradenton, FL

Enclosures

**AUBURNDALE POWER PARTNERS,**  
***LIMITED PARTNERSHIP***

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Appendix A

Summary Report  
Gaseous and Opacity Excess Emission  
and Monitoring System Performance

# SUMMARY REPORT GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE

**Auburndale Power Partners, 1501 Derby Avenue, Auburndale, FL 33823  
(813) 965-1561**

Pollutant (Circle One - SO <sub>2</sub> / <u>NO<sub>x</sub></u> / TRS / H <sub>2</sub> S / CO / Opacity )	
Reporting Period Dates: From	10/01/94 To 12/31/94
Company:	Auburndale Power Partnerd, Limited Partnership
Emission Limitation:	25 ppm corrected at 15% Oz
Address:	1501 Derby Avenue West, Auburndale, FL 33823
Monitor Manufacturer and Model No.:	Thermo Environmental Instruments, Inc. (TECO) Model 42
Date of Latest CMS Certification or Audit:	July 28, 1994
Process Unit Description:	Gas Turbine
Total Source Operating Time in reporting period:	1965 hrs.

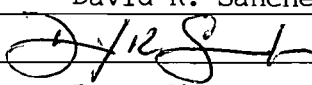
Emission Data Summary <sup>1</sup>	CMS Performance Summary <sup>2</sup>
1. Duration of excess emissions in reporting period due to: a. Startup/Shutdown <span style="float: right;"><u>6</u></span> b. Control equipment problems <span style="float: right;"><u>4</u></span> c. Process problems <span style="float: right;"><u>1</u></span> d. Other known causes <span style="float: right;"><u>0</u></span> e. Unknown causes <span style="float: right;"><u>0</u></span> 2. Total duration of excess emission <span style="float: right;"><u>11</u></span> 3. Total duration of excess emissions x (100) <span style="float: right;"><u>0.56</u> % <sup>2</sup></span> [Total source operating time].	1. CMS downtime in reporting period due to: a. Monitor equipment malfunctions <span style="float: right;"><u>30.35</u></span> b. Non-Monitor equipment malfunctions <span style="float: right;"><u>0</u></span> c. Quality assurance calibration <span style="float: right;"><u>37.45</u></span> d. Other known causes <span style="float: right;"><u>1.40</u></span> e. Unknown causes <span style="float: right;"><u>0</u></span> 2. Total CMS Downtime <span style="float: right;"><u>69.2</u></span> 3. [Total CMS Downtime] x (100) <span style="float: right;"><u>3.52</u> % <sup>2</sup></span> [Total source operating time].

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

On a separate page, describe any changes since last quarter in CMS, process, or controls.

I certify that the information contained in this report is true, accurate, and complete.

Name: David K. Sanches  
 Signature:   
 Title: Plant Manager  
 Date: 1.26.95



# SUMMARY REPORT GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE

**Auburndale Power Partners, 1501 Derby Avenue, Auburndale, FL 33823  
(813) 965-1561**

Pollutant (Circle One - SO <sub>2</sub> / <b>NO<sub>x</sub></b> / TRS / H <sub>2</sub> S / CO / Opacity )	
Reporting Period Dates: From	10/01/94 To 12/31/94
Company:	Auburndale Power Partners, Limited Partnership
Emission Limitation:	25 ppm NO <sub>x</sub> at ISO Conditions
Address:	1501 Derby Avenue West, Auburndale, FL 33823
Monitor Manufacturer and Model No.:	Thermo Environmental Instruments, Inc. (TECO) Model 42
Date of Latest CMS Certification or Audit:	July 28, 1994
Process Unit Description:	Gas Turbine
Total Source Operating Time in reporting period:	1965 hrs.

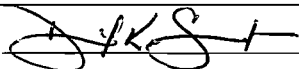
Emission Data Summary <sup>1</sup>	CMS Performance Summary <sup>2</sup>
1. Duration of excess emissions in reporting period due to: a. Startup/Shutdown <span style="float: right;">13</span> b. Control equipment problems <span style="float: right;">4</span> c. Process problems <span style="float: right;">2</span> d. Other known causes <span style="float: right;">0</span> e. Unknown causes <span style="float: right;">0</span> 2. Total duration of excess emission <span style="float: right;">19</span> 3. Total duration of excess emissions x (100) <span style="float: right;">0.97% <sup>2</sup></span> [Total source operating time].	1. CMS downtime in reporting period due to: a. Monitor equipment malfunctions <span style="float: right;">30.35</span> b. Non-Monitor equipment malfunctions <span style="float: right;">0</span> c. Quality assurance calibration <span style="float: right;">37.45</span> d. Other known causes <span style="float: right;">1.40</span> e. Unknown causes <span style="float: right;">0</span> 2. Total CMS Downtime <span style="float: right;">69.2</span> 3. [Total CMS Downtime] x (100) <span style="float: right;">3.52% <sup>2</sup></span> [Total source operating time].

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

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I certify that the information contained in this report is true, accurate, and complete.

Name: David K. Sanches  
 Signature:   
 Title: Plant Manager  
 Date: 1.26.95

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(813) 965-1561**

Pollutant (Circle One - SO <sub>2</sub> <u>NO<sub>x</sub></u> / TRS / H <sub>2</sub> S / CO / Opacity )	
Reporting Period Dates: From	<u>10/01/94</u> To <u>12/31/94</u>
Company:	<u>Auburndale Power Partners, Limited Partnership</u>
Emission Limitation:	<u>131 lbs/hr</u>
Address:	<u>1501 Derby Avenue, West, Auburndale, FL 33823</u>
Monitor Manufacturer and Model No.:	<u>Thermo Environmental Instruments, Inc. (TECO) Model 42</u>
Date of Latest CMS Certification or Audit:	<u>July 28, 1994</u>
Process Unit Description:	<u>Gas Turbine</u>
Total Source Operating Time in reporting period:	<u>1965 hrs.</u>

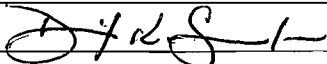
Emission Data Summary <sup>1</sup>	CMS Performance Summary <sup>2</sup>
1. Duration of excess emissions in reporting period due to: a. Startup/Shutdown <u>1</u> b. Control equipment problems <u>0</u> c. Process problems <u>0</u> d. Other known causes <u>0</u> e. Unknown causes <u>0</u> 2. Total duration of excess emission <u>1</u> 3. Total duration of excess emissions x (100) <u>0.05</u> % <sup>2</sup> [Total source operating time].	1. CMS downtime in reporting period due to: a. Monitor equipment malfunctions <u>30.35</u> b. Non-Monitor equipment malfunctions <u>0</u> c. Quality assurance calibration <u>37.45</u> d. Other known causes <u>1.40</u> e. Unknown causes <u>0</u> 2. Total CMS Downtime <u>69.2</u> 3. [Total CMS Downtime] x (100) <u>3.52</u> % <sup>2</sup> [Total source operating time].

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

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I certify that the information contained in this report is true, accurate, and complete.

Name: David K. Sanches  
 Signature:   
 Title: Plant Manager  
 Date: 1.26.95

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**Auburndale Power Partners, 1501 Derby Avenue, Auburndale, FL 33823  
(813) 965-1561**

Pollutant (Circle One - SO <sub>2</sub> / NO <sub>x</sub> / TRS / H <sub>2</sub> S / <u>CO</u> / Opacity )	
Reporting Period Dates: From	10/01/94 To 12/31/94
Company:	Auburndale Power Partners, Limited Partnership
Emission Limitation:	43.5 lbs/hr
Address:	1501 Derby Avenue West, Auburndale, FL 33823
Monitor Manufacturer and Model No.:	Thermo Environmental Instruments, Inc. (TECO) Model 48
Date of Latest CMS Certification or Audit:	July 28, 1994
Process Unit Description:	Gas Turbine
Total Source Operating Time in reporting period:	1965 hrs.

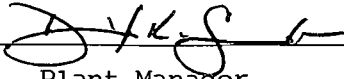
Emission Data Summary 1	CMS Performance Summary 2
1. Duration of excess emissions in reporting period due to: a. Startup/Shutdown <u>2</u> b. Control equipment problems <u>0</u> c. Process problems <u>0</u> d. Other known causes <u>0</u> e. Unknown causes <u>0</u> 2. Total duration of excess emission <u>2</u> 3. Total duration of excess emissions x (100) <u>0.10</u> % 2 [Total source operating time].	1. CMS downtime in reporting period due to: a. Monitor equipment malfunctions <u>1.13</u> b. Non-Monitor equipment malfunctions <u>0</u> c. Quality assurance calibration <u>37.50</u> d. Other known causes <u>28.50</u> e. Unknown causes <u>0</u> 2. Total CMS Downtime <u>67.13</u> 3. [Total CMS Downtime] x (100) <u>3.42</u> % 2 [Total source operating time].

1 For opacity, record all times in minutes. For gases, record all times in hours.

2 For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

On a separate page, describe any changes since last quarter in CMS, process, or controls.

I certify that the information contained in this report is true, accurate, and complete.

Name: David K. Sanches  
 Signature:   
 Title: Plant Manager  
 Date: 1.26.95

# SUMMARY REPORT GASEOUS AND OPACITY EXCESS EMISSION AND MONITORING SYSTEM PERFORMANCE

**Auburndale Power Partners, 1501 Derby Avenue, Auburndale, FL 33823  
(813) 965-1561**

Pollutant (Circle One - SO <sub>2</sub> / NO <sub>x</sub> / TRS / H <sub>2</sub> S / <u>CO</u> / Opacity )	
Reporting Period Dates: From	10/01/94 To 12/31/94
Company:	Auburndale Power Partners, Limited Partnership
Emission Limitation:	15 ppm
Address:	1501 Derby Avenue, West, Auburndale, FL 33823
Monitor Manufacturer and Model No.:	Thermo Environmental Instruments, Inc. (TECO) Model 48
Date of Latest CMS Certification or Audit:	July 28, 1994
Process Unit Description:	Gas Turbine
Total Source Operating Time in reporting period:	1965 hrs.

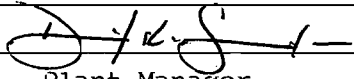
Emission Data Summary <sup>1</sup>	CMS Performance Summary <sup>2</sup>
1. Duration of excess emissions in reporting period due to:	1. CMS downtime in reporting period due to:
a. Startup/Shutdown <span style="float: right;">22</span>	a. Monitor equipment malfunctions <span style="float: right;">1.13</span>
b. Control equipment problems <span style="float: right;">0</span>	b. Non-Monitor equipment malfunctions <span style="float: right;">0</span>
c. Process problems <span style="float: right;">0</span>	c. Quality assurance calibration <span style="float: right;">37.50</span>
d. Other known causes <span style="float: right;">0</span>	d. Other known causes <span style="float: right;">28.50</span>
e. Unknown causes <span style="float: right;">0</span>	e. Unknown causes <span style="float: right;">0</span>
2. Total duration of excess emission <span style="float: right;">22</span>	2. Total CMS Downtime <span style="float: right;">67.13</span>
3. Total duration of excess emissions x (100) <span style="float: right;">1.12 %<sup>2</sup></span> [Total source operating time].	3. [Total CMS Downtime] x (100) <span style="float: right;">3.42 %<sup>2</sup></span> [Total source operating time].

<sup>1</sup> For opacity, record all times in minutes. For gases, record all times in hours.

<sup>2</sup> For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report shall be submitted.

On a separate page, describe any changes since last quarter in CMS, process, or controls.

I certify that the information contained in this report is true, accurate, and complete.

Name: David K. Sanches  
 Signature:   
 Title: Plant Manager  
 Date: 1.26.95

**AUBURNDALE POWER PARTNERS,**  
***LIMITED PARTNERSHIP***

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**Appendix B**

**Excess Emission  
and Monitoring System Performance Report**

# EXCESS EMISSIONS REPORT

PRINTED: 11-Jan-95

Auburndale Power Partners

1501 Derby Ave.

NOxout15 in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

SOURCE: TURBINE

Excess Began		Excess Ended		Duration		Reason for Excess Emissions		Corrective Action Taken	
Date	Time	Date	Time	Hours	Actual	Target			
10/15	16:00	10/15	16:59	1:00	50.1	25.0	1. Cold Start-up	2	Reached Minimum Load
11/13	18:00	11/13	18:59	1:00	27.3	25.0	1. Cold Start-up	2	Reached Minimum Load
11/15	03:00	11/15	03:59	1:00	39.7	25.0	2. Hot Start-up	2	Reached Minimum Load
11/23	10:00	11/23	12:59	3:00	26.2	25.0	8. Insufficient Steam injection	3	Restored Steam Injection
11/25	05:00	11/25	05:59	1:00	72.3	25.0	2. Hot Start-up	2	Reached Minimum Load
11/25	22:00	11/25	22:59	1:00	36.0	25.0	14. Load Change	8	Stabilized Load
12/02	22:00	12/02	22:59	1:00	36.7	25.0	4. CT Trip	3	Restored Steam Injection
12/12	23:00	12/12	23:59	1:00	37.0	25.0	5. Loss of Steam Injection	3	Restored Steam Injection
12/21	09:00	12/21	09:59	1:00	18.3	-99.9	19. False Emissions - Unit Off Line	12	Other (See Attachment to Report)
12/27	18:00	12/27	18:59	1:00	61.8	25.0	4. CT Trip	2	Reached Minimum Load

EXCESS EMISSIONS REPORT  
PRINTED: 11-Jan-95  
Auburndale Power Partners  
1501 Derby Ave.  
NOxoutlb in #/h

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994  
SOURCE: TURBINE

Excess Began		Excess Ended		Duration		Reason for Excess		Corrective Action	
Date	Time	Date	Time	Hours	Actual	Target	Emissions		Taken
12/20	11:00	12/21	06:59	20:00	71.0	-10.0	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)		
12/21	08:00	12/21	09:59	2:00	69.0	-10.0	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)		
12/21	09:00	12/21	09:59	1:00	68.9	-10.0	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)		
12/27	18:00	12/27	18:59	1:00	140.5	131.0	4. CT Trip	2 Reached Minimum Load	

EXCESS EMISSIONS REPORT  
 PRINTED: 11-Jan-95  
 Auburndale Power Partners  
 1501 Derby Ave.

NOx ISO in ppm  
 BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994  
 SOURCE: TURBINE

Excess Began		Excess Ended		Duration		Reason for Excess Emissions		Corrective Action Taken	
Date	Time	Date	Time	Hours	Actual	Target			
10/15	16:00	10/15	16:59	1:00	51.9	25.0	1. Cold Start-up	2	Reached Minimum Load
11/13	18:00	11/13	18:59	1:00	29.5	25.0	1. Cold Start-up	2	Reached Minimum Load
11/13	22:00	11/14	04:59	7:00	25.5	25.0	1. Cold Start-up	2	Reached Minimum Load
11/15	03:00	11/15	03:59	1:00	46.0	25.0	2. Hot Start-up	2	Reached Minimum Load
11/22	10:00	11/22	10:59	1:00	26.7	25.0	14. Load Change	8	Stabilized Load
11/23	10:00	11/23	12:59	3:00	27.0	25.0	8. Insufficient Steam injection	3	Restored Steam Injection
11/25	05:00	11/25	05:59	1:00	75.8	25.0	2. Hot Start-up	2	Reached Minimum Load
11/25	22:00	11/25	22:59	1:00	37.8	25.0	14. Load Change	8	Stabilized Load
12/02	22:00	12/02	22:59	1:00	40.3	25.0	4. CT Trip	3	Restored Steam Injection
12/12	23:00	12/12	23:59	1:00	39.4	25.0	5. Loss of Steam Injection	3	Restored Steam Injection
12/21	09:00	12/21	09:59	1:00	19.8	-99.9	19. False Emissions - Unit Off	Line 12	Other (See Attachment to Report)
12/27	18:00	12/27	18:59	1:00	62.3	25.0	4. CT Trip	2	Reached Minimum Load
12/30	08:00	12/30	08:59	1:00	22.4	21.9	19. False Emissions - Unit Off	Line 12	Other (See Attachment to Report)



EXCESS EMISSIONS REPORT  
 PRINTED: 11-Jan-95  
 Auburndale Power Partners  
 1501 Derby Ave.

CO in ppm  
 BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994  
 SOURCE: TURBINE

Excess Began		Excess Ended		Duration		Reason for Excess Emissions		Corrective Action Taken
Date	Time	Date	Time	Hours	Actual	Target		
10/15	16:00	10/15	17:59	2:00	28.5	21.0	1. Cold Start-up	2 Reached Minimum Load
11/04	22:00	11/04	22:59	1:00	105.7	21.0	3. Shutdown	1 No Corrective Action Necessary
11/13	18:00	11/14	04:59	11:00	39.0	21.0	1. Cold Start-up	2 Reached Minimum Load
11/15	03:00	11/15	03:59	1:00	23.9	21.0	2. Hot Start-up	2 Reached Minimum Load
11/24	23:00	11/24	23:59	1:00	93.2	21.0	4. CT Trip	2 Reached Minimum Load
11/25	06:00	11/25	06:59	1:00	58.2	21.0	2. Hot Start-up	2 Reached Minimum Load
11/25	08:00	11/25	10:59	3:00	58.0	21.0	2. Hot Start-up	2 Reached Minimum Load
12/21	09:00	12/21	09:59	1:00	3.0	-99.9	19. False Emissions - Unit Off	Line 12 Other (See Attachment to Report)
12/27	18:00	12/27	19:59	2:00	26.4	21.0	4. CT Trip	2 Reached Minimum Load
12/28	09:00	12/28	12:59	4:00	1.5	0.0	19. False Emissions - Unit Off	Line 12 Other (See Attachment to Report)

EXCESS EMISSIONS REPORT  
 PRINTED: 11-Jan-95  
 Auburndale Power Partners  
 1501 Derby Ave.  
 COlb/hr in #/h

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994  
 SOURCE: TURBINE

Excess Began		Excess Ended		Duration		Reason for Excess Emissions		Corrective Action Taken
Date	Time	Date	Time	Hours	Actual	Target		
10/15	17:00	10/15	17:59	1:00	65.0	43.5	1. Cold Start-up	2 Reached Minimum Load
11/13	18:00	11/13	18:59	1:00	59.3	43.5	1. Cold Start-up	2 Reached Minimum Load
12/20	11:00	12/21	06:59	20:00	4.8	-10.0	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	08:00	12/21	09:59	2:00	6.7	-10.0	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	09:00	12/21	09:59	1:00	6.6	-10.0	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	

INSTRUMENT UP/DOWN REPORT  
 PRINTED: 11-Jan-95 09:32  
 Burndale Power Partners  
 1501 Derby Ave.

NOx out in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
10/01	00:00	10/01	15:35	15:36	21. CEM DAS Problem	20 CEM Vendor to Repair
10/01	15:36	10/01	15:54	0:19	Not An Excess -- Calibration Data None Required	
10/01	18:00	10/01	18:18	0:19	Not An Excess -- Calibration Data None Required	
10/02	18:00	10/02	18:18	0:19	Not An Excess -- Calibration Data None Required	
10/03	18:00	10/03	18:14	0:15	Not An Excess -- Calibration Data None Required	
10/03	18:15	10/03	18:16	0:02	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/03	18:17	10/03	18:18	0:02	Not An Excess -- Calibration Data None Required	
10/03	18:19	10/03	18:47	0:29	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/03	18:48	10/03	19:03	0:16	Not An Excess -- Calibration Data None Required	
10/03	19:04	10/03	19:04	0:01	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/03	19:05	10/03	19:07	0:03	Not An Excess -- Calibration Data None Required	
10/03	19:08	10/04	07:37	12:30	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/04	07:38	10/04	07:57	0:20	Not An Excess -- Calibration Data None Required	
10/04	09:07	10/04	09:16	0:10	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/04	10:00	10/04	10:18	0:19	Not An Excess -- Calibration Data None Required	
10/04	18:00	10/04	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/05	07:00	10/05	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/05	18:00	10/05	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/06	07:00	10/06	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/06	18:00	10/06	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/07	07:00	10/07	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/07	18:00	10/07	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/08	07:00	10/08	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/08	18:00	10/08	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/09	07:00	10/09	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/09	18:00	10/09	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/10	07:00	10/10	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/10	18:00	10/10	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/11	07:00	10/11	07:14	0:15	Not An Excess -- Calibration Data None Required	
10/11	07:15	10/11	07:15	0:01	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/11	07:16	10/11	07:18	0:03	Not An Excess -- Calibration Data None Required	
10/11	07:19	10/11	07:53	0:35	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/11	07:54	10/11	08:36	0:43	Not An Excess -- Calibration Data None Required	
10/11	13:32	10/11	13:33	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/11	16:39	10/11	16:40	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/11	17:03	10/11	17:03	0:01	21. CEM DAS Problem	20 CEM Vendor to Repair
10/11	18:00	10/11	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/12	07:00	10/12	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/12	18:00	10/12	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/13	07:00	10/13	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/13	18:00	10/13	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/14	07:00	10/14	07:14	0:15	Not An Excess -- Calibration Data None Required	
10/14	07:15	10/14	07:15	0:01	20. CEM Analyzer Problem	18 Recalibrate CEM System

## INSTRUMENT UP/DOWN REPORT

PRINTED: 11-Jan-95 09:32

Auburndale Power Partners

1501 Derby Ave.

NOx out in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
10/14	07:16	10/14	07:18	0:03	Not An Excess -- Calibration Data None Required	
10/14	07:19	10/14	07:46	0:28	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/14	07:47	10/14	08:35	0:49	Not An Excess -- Calibration Data None Required	
10/14	18:00	10/14	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/15	07:00	10/15	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/15	18:00	10/15	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/16	07:00	10/16	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/16	18:00	10/16	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/17	07:00	10/17	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/17	09:46	10/17	09:47	0:02	21. CEM DAS Problem	Maintenance on DAS
10/17	12:26	10/17	12:27	0:02	21. CEM DAS Problem	Maintenance on DAS
10/17	16:29	10/17	16:35	0:07	21. CEM DAS Problem	Maintenance on DAS
10/17	16:41	10/17	16:43	0:03	21. CEM DAS Problem	Maintenance on DAS
10/17	17:10	10/17	17:51	0:42	Not An Excess -- Calibration Data None Required	
10/17	18:00	10/17	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/18	07:00	10/18	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/18	18:00	10/18	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/19	07:00	10/19	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/19	09:06	10/19	09:10	0:05	21. CEM DAS Problem	Maintenance on DAS
10/19	18:00	10/19	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/20	07:00	10/20	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/20	18:00	10/20	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/21	07:00	10/21	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/21	10:55	10/21	10:56	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/21	16:26	10/21	16:27	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/21	18:00	10/21	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/22	07:00	10/22	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/22	18:00	10/22	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/23	07:00	10/23	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/23	18:00	10/23	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/24	07:00	10/24	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/24	18:00	10/24	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/25	07:00	10/25	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/25	18:00	10/25	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/26	07:00	10/26	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/26	18:00	10/26	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/27	07:00	10/27	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/27	18:00	10/27	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/28	07:00	10/28	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/28	18:00	10/28	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/29	07:00	10/29	07:18	0:19	Not An Excess -- Calibration Data None Required	
10/29	18:00	10/29	18:03	0:04	Not An Excess -- Calibration Data None Required	
10/30	01:59	10/30	01:59	0:01	18. Other	12 Other (See Attachment to Report)

## INSTRUMENT UP/DOWN REPORT

INSTALLED: 11-Jan-95 09:32

Auburndale Power Partners

1501 Derby Ave.

NOx out in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
10/30	07:00	10/30	07:18	0:19	Not An Excess --	Calibration Data None Required
10/30	18:00	10/30	18:03	0:04	Not An Excess --	Calibration Data None Required
10/31	07:00	10/31	07:18	0:19	Not An Excess --	Calibration Data None Required
10/31	18:00	10/31	18:03	0:04	Not An Excess --	Calibration Data None Required
11/01	07:00	11/01	07:18	0:19	Not An Excess --	Calibration Data None Required
11/01	18:00	11/01	18:03	0:04	Not An Excess --	Calibration Data None Required
11/02	07:00	11/02	07:18	0:19	Not An Excess --	Calibration Data None Required
11/02	18:00	11/02	18:03	0:04	Not An Excess --	Calibration Data None Required
11/03	07:00	11/03	07:18	0:19	Not An Excess --	Calibration Data None Required
11/03	18:00	11/03	18:03	0:04	Not An Excess --	Calibration Data None Required
11/04	07:00	11/04	07:18	0:19	Not An Excess --	Calibration Data None Required
11/04	18:00	11/04	18:03	0:04	Not An Excess --	Calibration Data None Required
11/05	07:00	11/05	07:18	0:19	Not An Excess --	Calibration Data None Required
11/05	18:00	11/05	18:03	0:04	Not An Excess --	Calibration Data None Required
11/06	07:00	11/06	07:18	0:19	Not An Excess --	Calibration Data None Required
11/06	18:00	11/06	18:03	0:04	Not An Excess --	Calibration Data None Required
11/07	07:00	11/07	07:18	0:19	Not An Excess --	Calibration Data None Required
11/07	18:00	11/07	18:03	0:04	Not An Excess --	Calibration Data None Required
11/08	07:00	11/08	07:18	0:19	Not An Excess --	Calibration Data None Required
11/08	18:00	11/08	18:03	0:04	Not An Excess --	Calibration Data None Required
11/08	19:47	11/08	19:53	0:07	3. Shutdown	1 No Corrective Action Necessary
11/08	19:55	11/08	20:54	1:00	3. Shutdown	1 No Corrective Action Necessary
11/09	07:00	11/09	07:18	0:19	Not An Excess --	Calibration Data None Required
11/09	18:00	11/09	18:03	0:04	Not An Excess --	Calibration Data None Required
11/10	07:00	11/10	07:18	0:19	Not An Excess --	Calibration Data None Required
11/10	18:00	11/10	18:03	0:04	Not An Excess --	Calibration Data None Required
11/11	07:00	11/11	07:18	0:19	Not An Excess --	Calibration Data None Required
11/11	18:00	11/11	18:03	0:04	Not An Excess --	Calibration Data None Required
11/12	07:00	11/12	07:18	0:19	Not An Excess --	Calibration Data None Required
11/12	18:00	11/12	18:03	0:04	Not An Excess --	Calibration Data None Required
11/13	07:00	11/13	07:18	0:19	Not An Excess --	Calibration Data None Required
11/13	18:00	11/13	18:03	0:04	Not An Excess --	Calibration Data None Required
11/14	07:00	11/14	07:18	0:19	Not An Excess --	Calibration Data None Required
11/14	18:00	11/14	18:03	0:04	Not An Excess --	Calibration Data None Required
11/15	07:00	11/15	07:18	0:19	Not An Excess --	Calibration Data None Required
11/15	18:00	11/15	18:03	0:04	Not An Excess --	Calibration Data None Required
11/16	07:00	11/16	07:18	0:19	Not An Excess --	Calibration Data None Required
11/16	18:00	11/16	18:03	0:04	Not An Excess --	Calibration Data None Required
11/17	07:00	11/17	07:18	0:19	Not An Excess --	Calibration Data None Required
11/17	18:00	11/17	18:03	0:04	Not An Excess --	Calibration Data None Required
11/18	07:00	11/18	07:18	0:19	Not An Excess --	Calibration Data None Required
11/18	18:00	11/18	18:03	0:04	Not An Excess --	Calibration Data None Required
11/19	07:00	11/19	07:18	0:19	Not An Excess --	Calibration Data None Required

## INSTRUMENT UP/DOWN REPORT

INTED: 11-Jan-95 09:32

Auburndale Power Partners

1501 Derby Ave.

NOx out in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
11/19	18:00	11/19	18:03	0:04	Not An Excess --	Calibration Data None Required
11/20	07:00	11/20	07:18	0:19	Not An Excess --	Calibration Data None Required
11/20	18:00	11/20	18:03	0:04	Not An Excess --	Calibration Data None Required
11/21	07:00	11/21	07:18	0:19	Not An Excess --	Calibration Data None Required
11/21	18:00	11/21	18:03	0:04	Not An Excess --	Calibration Data None Required
11/22	07:00	11/22	07:18	0:19	Not An Excess --	Calibration Data None Required
11/22	18:00	11/22	18:03	0:04	Not An Excess --	Calibration Data None Required
11/23	07:00	11/23	07:18	0:19	Not An Excess --	Calibration Data None Required
11/23	18:00	11/23	18:03	0:04	Not An Excess --	Calibration Data None Required
11/24	07:00	11/24	07:18	0:19	Not An Excess --	Calibration Data None Required
11/24	18:00	11/24	18:03	0:04	Not An Excess --	Calibration Data None Required
11/25	07:00	11/25	07:18	0:19	Not An Excess --	Calibration Data None Required
11/25	18:00	11/25	18:03	0:04	Not An Excess --	Calibration Data None Required
11/26	07:00	11/26	07:18	0:19	Not An Excess --	Calibration Data None Required
11/26	18:00	11/26	18:03	0:04	Not An Excess --	Calibration Data None Required
11/27	07:00	11/27	07:18	0:19	Not An Excess --	Calibration Data None Required
11/27	18:00	11/27	18:03	0:04	Not An Excess --	Calibration Data None Required
11/28	07:00	11/28	07:18	0:19	Not An Excess --	Calibration Data None Required
11/28	18:00	11/28	18:03	0:04	Not An Excess --	Calibration Data None Required
11/29	07:00	11/29	07:18	0:19	Not An Excess --	Calibration Data None Required
11/29	18:00	11/29	18:03	0:04	Not An Excess --	Calibration Data None Required
11/30	07:00	11/30	07:18	0:19	Not An Excess --	Calibration Data None Required
11/30	18:00	11/30	18:03	0:04	Not An Excess --	Calibration Data None Required
12/01	07:00	12/01	07:18	0:19	Not An Excess --	Calibration Data None Required
12/01	18:00	12/01	18:03	0:04	Not An Excess --	Calibration Data None Required
12/02	07:00	12/02	07:18	0:19	Not An Excess --	Calibration Data None Required
12/02	18:00	12/02	18:03	0:04	Not An Excess --	Calibration Data None Required
12/03	07:00	12/03	07:18	0:19	Not An Excess --	Calibration Data None Required
12/03	18:00	12/03	18:03	0:04	Not An Excess --	Calibration Data None Required
12/04	07:00	12/04	07:18	0:19	Not An Excess --	Calibration Data None Required
12/04	18:00	12/04	18:03	0:04	Not An Excess --	Calibration Data None Required
12/05	07:00	12/05	07:18	0:19	Not An Excess --	Calibration Data None Required
12/05	18:00	12/05	18:03	0:04	Not An Excess --	Calibration Data None Required
12/06	07:00	12/06	07:18	0:19	Not An Excess --	Calibration Data None Required
12/06	18:00	12/06	18:03	0:04	Not An Excess --	Calibration Data None Required
12/07	07:00	12/07	07:18	0:19	Not An Excess --	Calibration Data None Required
12/07	18:00	12/07	18:03	0:04	Not An Excess --	Calibration Data None Required
12/08	07:00	12/08	07:18	0:19	Not An Excess --	Calibration Data None Required
12/08	18:00	12/08	18:03	0:04	Not An Excess --	Calibration Data None Required
12/09	07:00	12/09	07:18	0:19	Not An Excess --	Calibration Data None Required
12/09	18:00	12/09	18:03	0:04	Not An Excess --	Calibration Data None Required
12/10	07:00	12/10	07:18	0:19	Not An Excess --	Calibration Data None Required
12/10	18:00	12/10	18:03	0:04	Not An Excess --	Calibration Data None Required

## INSTRUMENT UP/DOWN REPORT

PRINTED: 11-Jan-95 09:32

Auburndale Power Partners

1501 Derby Ave.

NOx out in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
12/11	07:00	12/11	07:18	0:19	Not An Excess --	Calibration Data None Required
12/11	18:00	12/11	18:03	0:04	Not An Excess --	Calibration Data None Required
12/12	07:00	12/12	07:18	0:19	Not An Excess --	Calibration Data None Required
12/12	18:00	12/12	18:03	0:04	Not An Excess --	Calibration Data None Required
12/13	07:00	12/13	07:18	0:19	Not An Excess --	Calibration Data None Required
12/13	18:00	12/13	18:03	0:04	Not An Excess --	Calibration Data None Required
12/14	07:00	12/14	07:18	0:19	Not An Excess --	Calibration Data None Required
12/14	18:00	12/14	18:03	0:04	Not An Excess --	Calibration Data None Required
12/15	07:00	12/15	07:18	0:19	Not An Excess --	Calibration Data None Required
12/15	18:00	12/15	18:03	0:04	Not An Excess --	Calibration Data None Required
12/16	07:00	12/16	07:18	0:19	Not An Excess --	Calibration Data None Required
12/16	18:00	12/16	18:03	0:04	Not An Excess --	Calibration Data None Required
12/17	07:00	12/17	07:18	0:19	Not An Excess --	Calibration Data None Required
12/17	18:00	12/17	18:03	0:04	Not An Excess --	Calibration Data None Required
12/18	07:00	12/18	07:18	0:19	Not An Excess --	Calibration Data None Required
12/18	18:00	12/18	18:03	0:04	Not An Excess --	Calibration Data None Required
12/19	07:00	12/19	07:18	0:19	Not An Excess --	Calibration Data None Required
12/19	18:00	12/19	18:03	0:04	Not An Excess --	Calibration Data None Required
12/20	07:00	12/20	07:18	0:19	Not An Excess --	Calibration Data None Required
12/20	18:00	12/20	18:03	0:04	Not An Excess --	Calibration Data None Required
12/21	07:00	12/21	07:18	0:19	Not An Excess --	Calibration Data None Required
12/21	10:31	12/21	10:33	0:03	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	13:02	12/21	13:02	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	18:04	12/21	18:12	0:09	Not An Excess --	Calibration Data None Required
12/21	18:17	12/21	18:26	0:10	Not An Excess --	Calibration Data None Required
12/21	18:32	12/21	18:33	0:02	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/22	07:00	12/22	07:16	0:17	Not An Excess --	Calibration Data None Required
12/22	14:34	12/22	14:34	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/23	07:00	12/23	07:16	0:17	Not An Excess --	Calibration Data None Required
12/24	07:00	12/24	07:16	0:17	Not An Excess --	Calibration Data None Required
12/25	07:00	12/25	07:16	0:17	Not An Excess --	Calibration Data None Required
12/26	07:00	12/26	07:16	0:17	Not An Excess --	Calibration Data None Required
12/27	07:00	12/27	07:16	0:17	Not An Excess --	Calibration Data None Required
12/28	07:00	12/28	07:16	0:17	Not An Excess --	Calibration Data None Required
12/28	13:46	12/28	13:46	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/28	13:59	12/28	14:03	0:05	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/28	15:11	12/28	15:13	0:03	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/29	07:00	12/29	07:16	0:17	Not An Excess --	Calibration Data None Required
12/30	07:00	12/30	07:16	0:17	Not An Excess --	Calibration Data None Required
12/31	07:00	12/31	07:16	0:17	Not An Excess --	Calibration Data None Required

INSTRUMENT UP/DOWN REPORT  
 PRINTED: 11-Jan-95 10:01  
 Bourndale Power Partners  
 1501 Derby Ave.

CO in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
10/01	15:36	10/01	15:54	0:19	Not An Excess --	Calibration Data None Required
10/01	18:00	10/01	18:18	0:19	Not An Excess --	Calibration Data None Required
10/02	18:00	10/02	18:18	0:19	Not An Excess --	Calibration Data None Required
10/03	18:00	10/03	18:18	0:19	Not An Excess --	Calibration Data None Required
10/03	18:48	10/03	19:07	0:20	Not An Excess --	Calibration Data None Required
10/04	07:38	10/04	07:57	0:20	Not An Excess --	Calibration Data None Required
10/04	09:07	10/04	09:16	0:10	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/04	10:00	10/04	10:18	0:19	Not An Excess --	Calibration Data None Required
10/04	18:00	10/04	18:03	0:04	Not An Excess --	Calibration Data None Required
10/05	07:00	10/05	07:18	0:19	Not An Excess --	Calibration Data None Required
10/05	18:00	10/05	18:03	0:04	Not An Excess --	Calibration Data None Required
10/06	07:00	10/06	07:18	0:19	Not An Excess --	Calibration Data None Required
10/06	18:00	10/06	18:03	0:04	Not An Excess --	Calibration Data None Required
10/07	07:00	10/07	07:18	0:19	Not An Excess --	Calibration Data None Required
10/07	18:00	10/07	18:03	0:04	Not An Excess --	Calibration Data None Required
10/08	07:00	10/08	07:18	0:19	Not An Excess --	Calibration Data None Required
10/08	18:00	10/08	18:03	0:04	Not An Excess --	Calibration Data None Required
10/09	07:00	10/09	07:18	0:19	Not An Excess --	Calibration Data None Required
10/09	18:00	10/09	18:03	0:04	Not An Excess --	Calibration Data None Required
10/10	07:00	10/10	07:18	0:19	Not An Excess --	Calibration Data None Required
10/10	18:00	10/10	18:03	0:04	Not An Excess --	Calibration Data None Required
10/11	07:00	10/11	07:18	0:19	Not An Excess --	Calibration Data None Required
10/11	07:53	10/11	07:53	0:01	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/11	07:54	10/11	08:36	0:43	Not An Excess --	Calibration Data None Required
10/11	13:32	10/11	13:33	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/11	16:39	10/11	16:40	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/11	17:03	10/11	17:03	0:01	21. CEM DAS Problem	20 CEM Vendor to Repair
10/11	18:00	10/11	18:03	0:04	Not An Excess --	Calibration Data None Required
10/12	07:00	10/12	07:18	0:19	Not An Excess --	Calibration Data None Required
10/12	18:00	10/12	18:03	0:04	Not An Excess --	Calibration Data None Required
10/13	07:00	10/13	07:18	0:19	Not An Excess --	Calibration Data None Required
10/13	18:00	10/13	18:03	0:04	Not An Excess --	Calibration Data None Required
10/14	07:00	10/14	07:07	0:08	Not An Excess --	Calibration Data None Required
10/14	07:08	10/14	07:08	0:01	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/14	07:09	10/14	07:18	0:10	Not An Excess --	Calibration Data None Required
10/14	07:19	10/14	07:46	0:28	20. CEM Analyzer Problem	18 Recalibrate CEM System
10/14	07:47	10/14	08:35	0:49	Not An Excess --	Calibration Data None Required
10/14	18:00	10/14	18:03	0:04	Not An Excess --	Calibration Data None Required
10/15	07:00	10/15	07:18	0:19	Not An Excess --	Calibration Data None Required
10/15	16:00	10/15	17:59	2:00	1. Cold Start-up	2 Reached Minimum Load
10/15	18:00	10/15	18:03	0:04	Not An Excess --	Calibration Data None Required
10/16	07:00	10/16	07:18	0:19	Not An Excess --	Calibration Data None Required
10/16	18:00	10/16	18:03	0:04	Not An Excess --	Calibration Data None Required



## INSTRUMENT UP/DOWN REPORT

INTED: 11-Jan-95 10:01

Aburndale Power Partners

1501 Derby Ave.

CO in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
10/17	07:00	10/17	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/17	09:46	10/17	09:47	0:02	21. CEM DAS Problem	Maintenance on DAS
10/17	12:26	10/17	12:27	0:02	21. CEM DAS Problem	Maintenance on DAS
10/17	16:29	10/17	16:35	0:07	21. CEM DAS Problem	Maintenance on DAS
10/17	16:41	10/17	16:43	0:03	21. CEM DAS Problem	Maintenance on DAS
10/17	17:10	10/17	17:51	0:42	Not An Excess -- Calibration	Data None Required
10/17	18:00	10/17	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/18	07:00	10/18	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/18	18:00	10/18	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/19	07:00	10/19	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/19	09:06	10/19	09:10	0:05	21. CEM DAS Problem	Maintenance on DAS
10/19	18:00	10/19	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/20	07:00	10/20	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/20	18:00	10/20	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/21	07:00	10/21	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/21	10:55	10/21	10:56	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/21	16:26	10/21	16:27	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/21	18:00	10/21	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/22	07:00	10/22	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/22	18:00	10/22	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/23	07:00	10/23	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/23	18:00	10/23	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/24	07:00	10/24	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/24	18:00	10/24	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/25	07:00	10/25	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/25	17:59	10/25	18:03	0:05	Not An Excess -- Calibration	Data None Required
10/26	07:00	10/26	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/26	18:00	10/26	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/27	07:00	10/27	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/27	18:00	10/27	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/28	07:00	10/28	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/28	18:00	10/28	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/29	07:00	10/29	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/29	18:00	10/29	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/30	01:59	10/30	01:59	0:01	18. Other	12 Other (See Attachment to Report)
10/30	07:00	10/30	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/30	18:00	10/30	18:03	0:04	Not An Excess -- Calibration	Data None Required
10/31	07:00	10/31	07:18	0:19	Not An Excess -- Calibration	Data None Required
10/31	18:00	10/31	18:03	0:04	Not An Excess -- Calibration	Data None Required
11/01	07:00	11/01	07:18	0:19	Not An Excess -- Calibration	Data None Required
11/01	18:00	11/01	18:03	0:04	Not An Excess -- Calibration	Data None Required
11/02	07:00	11/02	07:18	0:19	Not An Excess -- Calibration	Data None Required
11/02	18:00	11/02	18:03	0:04	Not An Excess -- Calibration	Data None Required

## INSTRUMENT UP/DOWN REPORT

INTED: 11-Jan-95 10:01

Auburndale Power Partners

1501 Derby Ave.

CO in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
11/03	07:00	11/03	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/03	18:00	11/03	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/04	07:00	11/04	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/04	18:00	11/04	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/04	22:00	11/04	22:59	1:00	3. Shutdown	1 No Corrective Action Necessary
11/05	07:00	11/05	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/05	18:00	11/05	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/06	07:00	11/06	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/06	18:00	11/06	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/07	07:00	11/07	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/07	18:00	11/07	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/08	07:00	11/08	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/08	18:00	11/08	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/08	19:47	11/08	19:53	0:07	3. Shutdown	1 No Corrective Action Necessary
11/08	19:55	11/08	20:54	1:00	3. Shutdown	1 No Corrective Action Necessary
11/09	07:00	11/09	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/09	18:00	11/09	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/10	07:00	11/10	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/10	18:00	11/10	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/11	07:00	11/11	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/11	18:00	11/11	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/12	07:00	11/12	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/12	18:00	11/12	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/13	07:00	11/13	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/13	18:00	11/14	04:59	11:00	1. Cold Start-up	2 Reached Minimum Load
11/13	18:00	11/13	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/14	07:00	11/14	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/14	18:00	11/14	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/15	03:00	11/15	03:59	1:00	2. Hot Start-up	2 Reached Minimum Load
11/15	07:00	11/15	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/15	18:00	11/15	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/16	07:00	11/16	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/16	18:00	11/16	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/17	07:00	11/17	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/17	18:00	11/17	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/18	07:00	11/18	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/18	18:00	11/18	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/19	07:00	11/19	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/19	18:00	11/19	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/20	07:00	11/20	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/20	18:00	11/20	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/21	07:00	11/21	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/21	18:00	11/21	18:03	0:04	Not An Excess -- Calibration Data	None Required

## INSTRUMENT UP/DOWN REPORT

PRINTED: 11-Jan-95 10:01

Auburndale Power Partners

1501 Derby Ave.

CO in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
11/22	07:00	11/22	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/22	18:00	11/22	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/23	07:00	11/23	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/23	18:00	11/23	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/24	07:00	11/24	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/24	18:00	11/24	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/24	23:00	11/24	23:59	1:00	4. CT Trip	2 Reached Minimum Load
11/25	06:00	11/25	06:59	1:00	2. Hot Start-up	2 Reached Minimum Load
11/25	07:00	11/25	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/25	08:00	11/25	10:59	3:00	2. Hot Start-up	2 Reached Minimum Load
11/25	18:00	11/25	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/26	07:00	11/26	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/26	18:00	11/26	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/27	07:00	11/27	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/27	18:00	11/27	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/28	07:00	11/28	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/28	18:00	11/28	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/29	07:00	11/29	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/29	18:00	11/29	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/30	07:00	11/30	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/30	18:00	11/30	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/01	07:00	12/01	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/01	18:00	12/01	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/02	07:00	12/02	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/02	18:00	12/02	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/03	07:00	12/03	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/03	18:00	12/03	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/04	07:00	12/04	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/04	18:00	12/04	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/05	07:00	12/05	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/05	18:00	12/05	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/06	07:00	12/06	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/06	18:00	12/06	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/07	07:00	12/07	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/07	18:00	12/07	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/08	07:00	12/08	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/08	18:00	12/08	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/09	07:00	12/09	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/09	18:00	12/09	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/10	07:00	12/10	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/10	18:00	12/10	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/11	07:00	12/11	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/11	18:00	12/11	18:03	0:04	Not An Excess -- Calibration Data	None Required

## INSTRUMENT UP/DOWN REPORT

INTENDED: 11-Jan-95 10:01

Auburndale Power Partners

1501 Derby Ave.

CO in ppm

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
12/12	07:00	12/12	07:18	0:19	Not An Excess --	Calibration Data None Required
12/12	18:00	12/12	18:03	0:04	Not An Excess --	Calibration Data None Required
12/13	07:00	12/13	07:18	0:19	Not An Excess --	Calibration Data None Required
12/13	18:00	12/13	18:03	0:04	Not An Excess --	Calibration Data None Required
12/14	07:00	12/14	07:18	0:19	Not An Excess --	Calibration Data None Required
12/14	18:00	12/14	18:03	0:04	Not An Excess --	Calibration Data None Required
12/15	07:00	12/15	07:18	0:19	Not An Excess --	Calibration Data None Required
12/15	18:00	12/15	18:03	0:04	Not An Excess --	Calibration Data None Required
12/16	07:00	12/16	07:18	0:19	Not An Excess --	Calibration Data None Required
12/16	18:00	12/16	18:03	0:04	Not An Excess --	Calibration Data None Required
12/17	07:00	12/17	07:18	0:19	Not An Excess --	Calibration Data None Required
12/17	18:00	12/17	18:03	0:04	Not An Excess --	Calibration Data None Required
12/18	07:00	12/18	07:18	0:19	Not An Excess --	Calibration Data None Required
12/18	18:00	12/18	18:03	0:04	Not An Excess --	Calibration Data None Required
12/19	07:00	12/19	07:18	0:19	Not An Excess --	Calibration Data None Required
12/19	18:00	12/19	18:03	0:04	Not An Excess --	Calibration Data None Required
12/20	07:00	12/20	07:18	0:19	Not An Excess --	Calibration Data None Required
12/20	18:00	12/20	18:03	0:04	Not An Excess --	Calibration Data None Required
12/21	07:00	12/21	07:18	0:19	Not An Excess --	Calibration Data None Required
12/21	09:00	12/21	09:59	1:00	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	10:31	12/21	10:33	0:03	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	13:02	12/21	13:02	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	18:04	12/21	18:10	0:07	Not An Excess --	Calibration Data None Required
12/21	18:11	12/21	18:16	0:06	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	18:17	12/21	18:26	0:10	Not An Excess --	Calibration Data None Required
12/21	18:32	12/21	18:33	0:02	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/22	07:00	12/22	07:16	0:17	Not An Excess --	Calibration Data None Required
12/22	14:34	12/22	14:34	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/23	07:00	12/23	07:16	0:17	Not An Excess --	Calibration Data None Required
12/24	07:00	12/24	07:16	0:17	Not An Excess --	Calibration Data None Required
12/25	07:00	12/25	07:16	0:17	Not An Excess --	Calibration Data None Required
12/26	07:00	12/26	07:16	0:17	Not An Excess --	Calibration Data None Required
12/27	07:00	12/27	07:16	0:17	Not An Excess --	Calibration Data None Required
12/27	18:00	12/27	19:59	2:00	4. CT Trip	2 Reached Minimum Load
12/28	07:00	12/28	07:16	0:17	Not An Excess --	Calibration Data None Required
12/28	09:00	12/28	12:59	4:00	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/28	13:46	12/28	13:46	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/28	13:59	12/28	14:03	0:05	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/28	15:11	12/28	15:13	0:03	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/29	07:00	12/29	07:16	0:17	Not An Excess --	Calibration Data None Required
12/30	07:00	12/30	07:16	0:17	Not An Excess --	Calibration Data None Required
12/31	07:00	12/31	07:16	0:17	Not An Excess --	Calibration Data None Required

INSTRUMENT UP/DOWN REPORT  
 PRINTED: 11-Jan-95 10:37  
 Burndale Power Partners  
 1501 Derby Ave.

02 in %

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began Date Time	CEM Outage Ended Date Time	Total CEM downtime	Reason for Downtime	Corrective Action Taken
10/01 15:36	10/01 15:54	0:19	Not An Excess -- Calibration Data None Required	
10/01 18:00	10/01 18:18	0:19	Not An Excess -- Calibration Data None Required	
10/02 18:00	10/02 18:18	0:19	Not An Excess -- Calibration Data None Required	
10/03 18:00	10/03 18:18	0:19	Not An Excess -- Calibration Data None Required	
10/03 18:48	10/03 19:07	0:20	Not An Excess -- Calibration Data None Required	
10/04 07:38	10/04 07:57	0:20	Not An Excess -- Calibration Data None Required	
10/04 09:07	10/04 09:16	0:10	20. CEM Analyzer Problem 18 Recalibrate CEM System	
10/04 10:00	10/04 10:18	0:19	Not An Excess -- Calibration Data None Required	
10/04 18:00	10/04 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/05 07:00	10/05 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/05 18:00	10/05 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/06 07:00	10/06 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/06 18:00	10/06 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/07 07:00	10/07 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/07 18:00	10/07 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/08 07:00	10/08 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/08 18:00	10/08 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/09 07:00	10/09 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/09 18:00	10/09 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/10 07:00	10/10 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/10 18:00	10/10 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/11 07:00	10/11 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/11 07:53	10/11 07:53	0:01	20. CEM Analyzer Problem 18 Recalibrate CEM System	
10/11 07:54	10/11 08:36	0:43	Not An Excess -- Calibration Data None Required	
10/11 13:32	10/11 13:33	0:02	21. CEM DAS Problem 20 CEM Vendor to Repair	
10/11 16:39	10/11 16:40	0:02	21. CEM DAS Problem 20 CEM Vendor to Repair	
10/11 17:03	10/11 17:03	0:01	21. CEM DAS Problem 20 CEM Vendor to Repair	
10/11 18:00	10/11 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/12 07:00	10/12 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/12 18:00	10/12 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/13 07:00	10/13 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/13 18:00	10/13 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/14 07:00	10/14 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/14 07:46	10/14 07:46	0:01	20. CEM Analyzer Problem 18 Recalibrate CEM System	
10/14 07:47	10/14 08:35	0:49	Not An Excess -- Calibration Data None Required	
10/14 18:00	10/14 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/15 07:00	10/15 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/15 18:00	10/15 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/16 07:00	10/16 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/16 18:00	10/16 18:03	0:04	Not An Excess -- Calibration Data None Required	
10/17 07:00	10/17 07:18	0:19	Not An Excess -- Calibration Data None Required	
10/17 09:46	10/17 09:47	0:02	21. CEM DAS Problem Maintenance on DAS	
10/17 12:26	10/17 12:27	0:02	21. CEM DAS Problem Maintenance on DAS	

## INSTRUMENT UP/DOWN REPORT

PRINTED: 11-Jan-95 10:37

Auburndale Power Partners

1501 Derby Ave.

02 in %

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
10/17	16:29	10/17	16:35	0:07	21. CEM DAS Problem	Maintenance on DAS
10/17	16:41	10/17	16:43	0:03	21. CEM DAS Problem	Maintenance on DAS
10/17	17:10	10/17	17:51	0:42	Not An Excess -- Calibration Data	None Required
10/17	18:00	10/17	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/18	07:00	10/18	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/18	18:00	10/18	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/19	07:00	10/19	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/19	09:06	10/19	09:10	0:05	21. CEM DAS Problem	Maintenance on DAS
10/19	18:00	10/19	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/20	07:00	10/20	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/20	18:00	10/20	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/21	07:00	10/21	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/21	10:55	10/21	10:56	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/21	16:26	10/21	16:27	0:02	21. CEM DAS Problem	20 CEM Vendor to Repair
10/21	18:00	10/21	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/22	07:00	10/22	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/22	18:00	10/22	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/23	07:00	10/23	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/23	18:00	10/23	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/24	07:00	10/24	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/24	18:00	10/24	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/25	07:00	10/25	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/25	18:00	10/25	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/26	07:00	10/26	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/26	18:00	10/26	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/27	07:00	10/27	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/27	18:00	10/27	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/28	07:00	10/28	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/28	18:00	10/28	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/29	07:00	10/29	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/29	18:00	10/29	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/30	01:59	10/30	01:59	0:01	18. Other	12 Other (See Attachment to Report)
10/30	07:00	10/30	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/30	18:00	10/30	18:03	0:04	Not An Excess -- Calibration Data	None Required
10/31	07:00	10/31	07:18	0:19	Not An Excess -- Calibration Data	None Required
10/31	18:00	10/31	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/01	07:00	11/01	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/01	18:00	11/01	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/02	07:00	11/02	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/02	18:00	11/02	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/03	07:00	11/03	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/03	18:00	11/03	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/04	07:00	11/04	07:18	0:19	Not An Excess -- Calibration Data	None Required

## INSTRUMENT UP/DOWN REPORT

INTED: 11-Jan-95 10:37

Auburndale Power Partners

1501 Derby Ave.

02 in %

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
11/04	18:00	11/04	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/05	07:00	11/05	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/05	18:00	11/05	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/06	07:00	11/06	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/06	18:00	11/06	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/07	07:00	11/07	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/07	18:00	11/07	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/08	07:00	11/08	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/08	18:00	11/08	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/08	19:47	11/08	19:53	0:07	3. Shutdown	1 No Corrective Action Necessary
11/08	19:55	11/08	20:54	1:00	3. Shutdown	1 No Corrective Action Necessary
11/09	07:00	11/09	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/09	18:00	11/09	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/10	07:00	11/10	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/10	18:00	11/10	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/11	07:00	11/11	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/11	18:00	11/11	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/12	07:00	11/12	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/12	18:00	11/12	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/13	07:00	11/13	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/13	18:00	11/13	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/14	07:00	11/14	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/14	18:00	11/14	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/15	07:00	11/15	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/15	18:00	11/15	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/16	07:00	11/16	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/16	18:00	11/16	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/17	07:00	11/17	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/17	18:00	11/17	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/18	07:00	11/18	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/18	18:00	11/18	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/19	07:00	11/19	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/19	18:00	11/19	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/20	07:00	11/20	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/20	18:00	11/20	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/21	07:00	11/21	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/21	18:00	11/21	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/22	07:00	11/22	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/22	18:00	11/22	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/23	07:00	11/23	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/23	18:00	11/23	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/24	07:00	11/24	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/24	18:00	11/24	18:03	0:04	Not An Excess -- Calibration Data	None Required

## INSTRUMENT UP/DOWN REPORT

PRINTED: 11-Jan-95 10:37

Auburndale Power Partners

1501 Derby Ave.

02 in %

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
11/25	07:00	11/25	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/25	18:00	11/25	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/26	07:00	11/26	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/26	18:00	11/26	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/27	07:00	11/27	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/27	18:00	11/27	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/28	07:00	11/28	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/28	18:00	11/28	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/29	07:00	11/29	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/29	18:00	11/29	18:03	0:04	Not An Excess -- Calibration Data	None Required
11/30	07:00	11/30	07:18	0:19	Not An Excess -- Calibration Data	None Required
11/30	18:00	11/30	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/01	07:00	12/01	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/01	18:00	12/01	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/02	07:00	12/02	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/02	18:00	12/02	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/03	07:00	12/03	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/03	18:00	12/03	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/04	07:00	12/04	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/04	18:00	12/04	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/05	07:00	12/05	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/05	18:00	12/05	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/06	07:00	12/06	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/06	18:00	12/06	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/07	07:00	12/07	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/07	18:00	12/07	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/08	07:00	12/08	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/08	18:00	12/08	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/09	07:00	12/09	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/09	18:00	12/09	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/10	07:00	12/10	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/10	18:00	12/10	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/11	07:00	12/11	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/11	18:00	12/11	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/12	07:00	12/12	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/12	18:00	12/12	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/13	07:00	12/13	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/13	18:00	12/13	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/14	07:00	12/14	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/14	18:00	12/14	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/15	07:00	12/15	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/15	18:00	12/15	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/16	07:00	12/16	07:18	0:19	Not An Excess -- Calibration Data	None Required



## INSTRUMENT UP/DOWN REPORT

PRINTED: 11-Jan-95 10:37

Auburndale Power Partners

1501 Derby Ave.

02 in %

BEGINNING Oct. 1, 1994 AND ENDING Dec. 31, 1994

CEM Outage Began		CEM Outage Ended		Total CEM downtime	Reason for Downtime	Corrective Action Taken
Date	Time	Date	Time			
12/16	18:00	12/16	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/17	07:00	12/17	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/17	18:00	12/17	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/18	07:00	12/18	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/18	18:00	12/18	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/19	07:00	12/19	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/19	18:00	12/19	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/20	07:00	12/20	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/20	18:00	12/20	18:03	0:04	Not An Excess -- Calibration Data	None Required
12/21	07:00	12/21	07:18	0:19	Not An Excess -- Calibration Data	None Required
12/21	10:31	12/21	10:33	0:03	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	13:02	12/21	13:02	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/21	18:04	12/21	18:12	0:09	Not An Excess -- Calibration Data	None Required
12/21	18:17	12/21	18:26	0:10	Not An Excess -- Calibration Data	None Required
12/21	18:32	12/21	18:33	0:02	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/22	07:00	12/22	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/22	14:34	12/22	14:34	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/23	07:00	12/23	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/24	07:00	12/24	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/25	07:00	12/25	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/26	07:00	12/26	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/27	07:00	12/27	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/28	07:00	12/28	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/28	13:46	12/28	13:46	0:01	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/28	13:59	12/28	14:03	0:05	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/28	15:11	12/28	15:13	0:03	19. False Emissions - Unit Off Line 12 Other (See Attachment to Report)	
12/29	07:00	12/29	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/30	07:00	12/30	07:16	0:17	Not An Excess -- Calibration Data	None Required
12/31	07:00	12/31	07:16	0:17	Not An Excess -- Calibration Data	None Required

PRINTED: 11-Jan-95

Burndale Power Partners

1501 Derby Ave.

BEGINNING Oct. 1, 1994 AND ENDING Jan. 11, 1995

SOURCE: TURBINE CEMS id no.:

Operation Outage Began	Operation Outage Ended	Source Downtime dd/hh:mm	Reasons for Downtime	Corrective Action
10/14 23:43	10/15 15:56	16:14	Process down	
10/17 09:46	10/17 09:46	00:01	Data Acquisition down	
10/17 16:29	10/17 16:35	00:07	Data Acquisition down	
10/17 16:41	10/17 16:42	00:02	Data Acquisition down	
10/18 14:00	10/18 14:00	00:01	Data Acquisition down	
10/19 09:06	10/19 09:08	00:03	Data Acquisition down	
11/04 23:36	11/08 19:46	3/20:11	Process down	
11/08 20:33	11/08 20:55	00:23	Data Acquisition down	
11/08 20:56	11/13 17:23	4/20:28	Process down	
11/14 12:00	11/15 01:41	13:42	Process down	
11/15 02:01	11/15 02:29	00:29	Process down	
11/24 23:55	11/25 04:27	04:33	Process down	
12/21 10:31	12/21 10:33	00:03	Data Acquisition down	
12/22 14:34	12/22 14:34	00:01	Data Acquisition down	
12/28 13:59	12/28 13:59	00:01	Data Acquisition down	
12/28 15:11	12/28 15:11	00:01	Data Acquisition down	

PRINTED: 11-Jan-95

Auburndale Power Partners

1501 Derby Ave.

BEGINNING Oct. 1, 1994 AND ENDING Jan. 11, 1995

SOURCE: TURBINE CEMS id no.:

## Outage Summary

Total Times	DAYS/HRS:MINS
-----	-----
Process Up Time	81/20:40
Process Down Time	10/03:37
Data Acquisition Down Time	00:43
-----	-----
Total Time in Period	92/01:00

## Time percentages

-----		
Per cent process up time	88.9%	Process Uptime / Time in Period
Per cent process down time	11.0%	Process Downtime / Time in Period
Per cent DA down time	0.0%	DA Downtime / Time in Period
-----	-----	
Total time	100.0%	

Process availability 100.0%  $\text{Process Uptime} / (\text{Process Uptime} + \text{DA Downtime})$

**AUBURNDALE POWER PARTNERS,**  
***LIMITED PARTNERSHIP***

---

Appendix C

Calibration Gas Audit Report

AUDIT TEST REPORT  
OF THE  
AUBURNDALE POWER PLANT  
CONTINUOUS EMISSION OPERATING SYSTEM (CEMS)  
FOR THE  
FOURTH QUARTER 1994

Location: Auburndale, Florida

Test Date: January 12, 1995

PACE, Inc. Project Number: 250126.600

Auburndale Power Plant  
4th Quarter 1994 - CEMS Audit  
January 26, 1995

**Table Of Contents**

<u>Section</u>	<u>Page</u>
1.0 Introduction	1
2.0 Purpose	1
3.0 CEMS Description	1
3.0 Audit Method	2
4.0 Data Summary	3
5.0 Results	4

**Appendices**

- A. Florida Department Of Environmental Protection Permit #: AC53-208321
- B. Source Design - Figures
- C. Data
- D. Certified Gas Standards Data
- E. Conversation Record From FDEP - Granting Extension

Auburndale Power Plant  
4th Quarter 1994 - CEMS Audit  
January 26, 1995

## 1.0 Introduction

An audit was performed on the Continuous Emission Monitoring System (CEMS) at the Auburndale Power Plant, located in Auburndale, Florida on January 12, 1995. The audit was conducted by James E. Franklin of PACE, Inc.. The audit consisted of using calibration gas standards and measuring the response of the CEMS to a set of known gas concentrations. The gaseous compounds that the CEMS is designed to monitor are: Nitrogen Oxides, Carbon Monoxide and Oxygen.

## 2.0 Purpose

The purpose of the audit was to satisfy the quality assurance / quality control requirements established by the Environmental Protection Agency (EPA) for the operation of CEMS equipment and as required by the Florida Department Of Environmental Protection (FDEP). Specific requirements are stated in the Code Of Federal Regulations, 40 CFR Part 60, Appendix F.

## 3.0 CEMS Description

The CEMS equipment used at the Auburndale Power Plant is housed in a dedicated trailer next to the main emissions source. Figures showing the design of the source, emissions flow and sample probe location are located in appendix B. The following analyzers and equipment are installed at the site:

### Analyzers

<u>Equipment Manufacturer</u>	<u>Model</u>	<u>Parameter Monitored</u>
Thermo Environmental Instruments	42H	Nitrogen Oxides
Thermo Environmental Instruments	48	Carbon Monoxide
Rosemount Analytical	755R	Oxygen

### Support Equipment

<u>Equipment Manufacturer</u>	<u>Model</u>	<u>Purpose</u>
Baldwin Environmental, Inc.	Electronic Water Conditioner	Sample Conditioner
Enertec		CEMS System Design & Datalogging Hardware

The CEMS system operator is Mr. John Chald, who assisted during the 1-12-95 audit.

Auburndale Power Plant  
4th Quarter 1994 - CEMS Audit  
January 26, 1995

### 3.0 Audit Method

The EPA procedures in 40 CFR Part 60 Appendix F, Quality Assurance Procedures were followed for this audit. In the procedure the CEMS equipment is challenged with audit gas cylinders at specific concentrations dependent upon the span value of the analyzer for each parameter monitored. The audit gas concentrations for this audit were selected based on the following criteria:

Audit Point	Audit	Range
	Pollutant Monitors	Oxygen
1	20 to 30 % of span value	4 to 6 % by volume
2	50 to 60 % of span value	8 to 12 % by volume

The Auburndale Power Plant CEMS had been set up with the following span values:

Nitrogen Oxide	0 - 200 ppm
Carbon Monoxide	0 - 200 ppm
Oxygen	0 - 25 % by volume

The audit gas is introduced into the system in a manner such that the gas flows through the sample line, filters and sample conditioners in the normal manner. The audit gas is run until a stable response is noted on the CEMS; three runs with each audit gas standard are made for a test. The audit gas cylinders used must be different than the ones used for daily and routine calibration purposes. The audit gases must be manufactured according to EPA's document: EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards, revised 9/93.

#### Specific Audit Procedures

The audit gas cylinders were placed in the CEMS trailer on 1/11/95, the day before the audit, in order that the gases may equilibrate prior to the audit. The existing calibration gas delivery system was used; i.e. the audit cylinders were installed in place of the daily standard gas cylinders. The Enertec datalogger and controller has a programmed calibration cycle that was used for the control of audit gas flow. A calibration cycle consisted of four events in the following order: oxygen, carbon monoxide, oxygen and nitric oxide. The audit gases were introduced one at a time for a total of five minutes and then the next gas was introduced. The response of the CEMS as each audit gas was introduced was recorded by the system's datalogger and in field notes. At the end of the cycle run the system was restarted until three runs had been completed for that audit point. A calibration cycle lasted for 45 minutes. The audit point # 1 gases were run during the first three calibration cycles and the audit point # 2 gases were run during the remaining three calibration cycles. At the end of the sixth calibration cycle the audit gas cylinders were removed and the daily gas cylinders were reinstalled and a final "daily" calibration cycle was run.



Auburndale Power Plant  
4th Quarter 1994 - CEMS Audit  
January 26, 1995

#### 4.0 Data Summary

Below is a table summarizing the data in appendix C.

Audit Point #	Run Start Time (Hr)	Cylinder #	Run #	Cylinder Concentration (ppm)	CEMS Response (ppm)
Nitrogen Oxides					
1	13:19	SA 8828	1	58.3	59.3
	14:15		2	58.3	59.3
	15:10		3	58.3	59.5
2	16:31	SA 15515	1	104	106.0
	17:19		2	104	106.5
	18:06		3	104	105.4
Carbon Monoxide					
1	13:19	CC 56982	1	43.9	45.1
	14:15		2	43.9	45.0
	15:10		3	43.9	45.1
2	16:31	SA 4803	1	104	105.4
	17:19		2	104	105.2
	18:06		3	104	105.5
Oxygen					
1	13:19	SA 14352	1	4.97	4.9
	14:15		2	4.97	4.9
	15:10		3	4.97	4.9
2	16:31	SA 14734	1	9.90	9.9
	17:19		2	9.90	9.9
	18:06		3	9.90	9.9

Auburndale Power Plant  
4th Quarter 1994 - CEMS Audit  
January 26, 1995

## 5.0 Results

The following formula was used for calculating CEMS accuracy:

$$A = (1 - ((C_m - C_a) / C_a) * 100),$$

where A = Accuracy Of CEMS, percent (%), absolute  
C<sub>m</sub> = Average CEMS Response for three runs  
C<sub>a</sub> = Audit Gas Concentration

The results are as follows:

<u>Parameter</u>	<u>Audit Gas Conc. (ppm)</u>	<u>Average CEMS Response (ppm)</u>	<u>CEMS Accuracy (%)</u>	<u>Limit (%)</u>
Nitrogen Oxides				
Audit Point # 1	58.3	59.4	98.1	> 85
Audit Point # 2	104	106.0	98.1	> 85
Carbon Monoxide				
Audit Point # 1	43.9	45.1	97.3	> 85
Audit Point # 2	104	105.4	98.7	> 85
Oxygen (values are given in % by volume)				
Audit Point # 1	4.97	4.9	98.6	> 85
Audit Point # 2	9.90	9.9	100.0	> 85

The CEMS response to each of the audit gas concentrations was within the required accuracy limit.

APPENDIX A

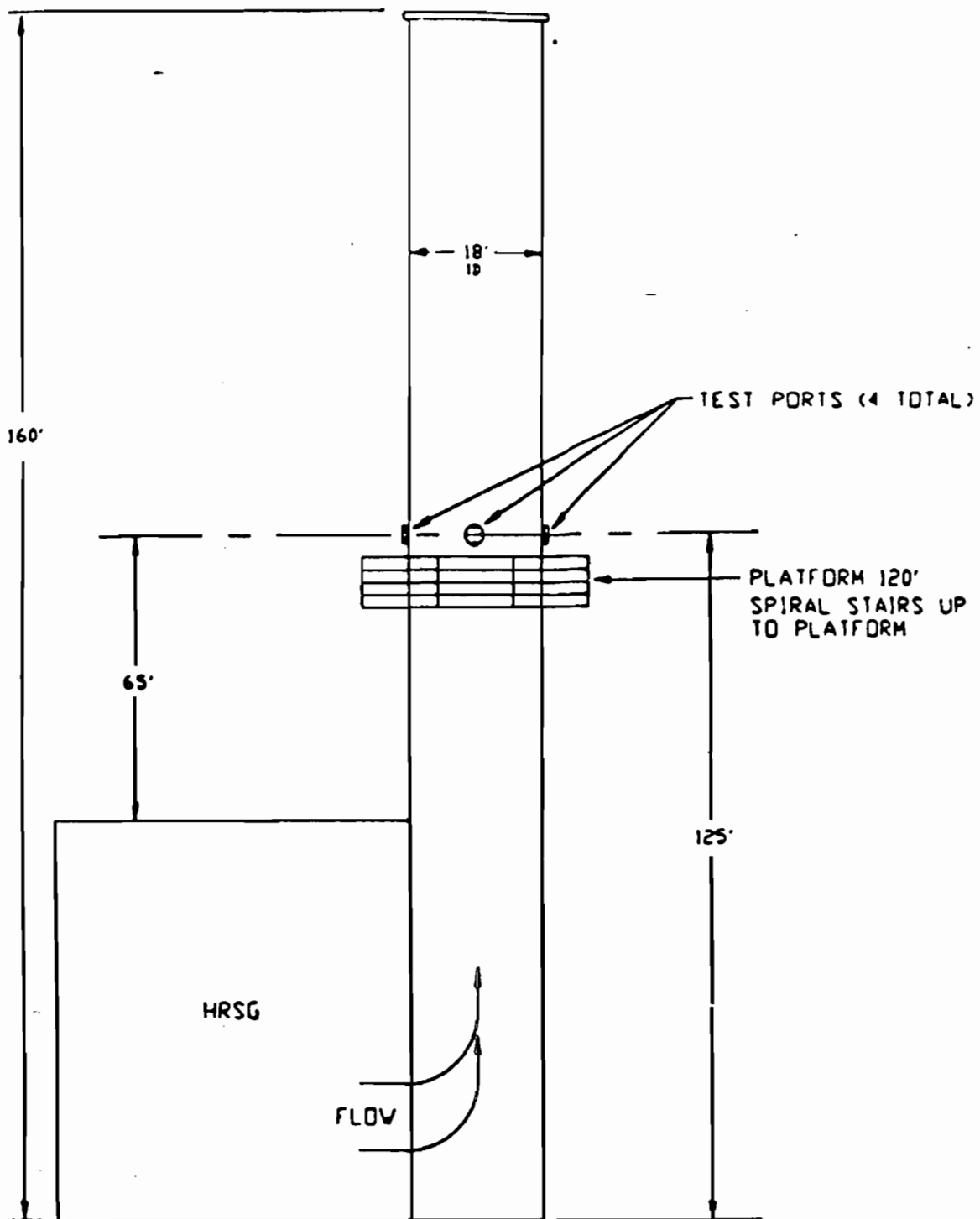
Florida Department Of Environmental Protection Permit #: AC53-2083210

APPENDIX B

Source Design - Figures

FIGURE 1

# AUBURNDALE COGENERATION FACILITY LOCATION OF TEST PORTS



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TITLE: AUBURNDALE EMISSIONS TESTING PROTOCOL

TYPE  
ESP

REV  
001



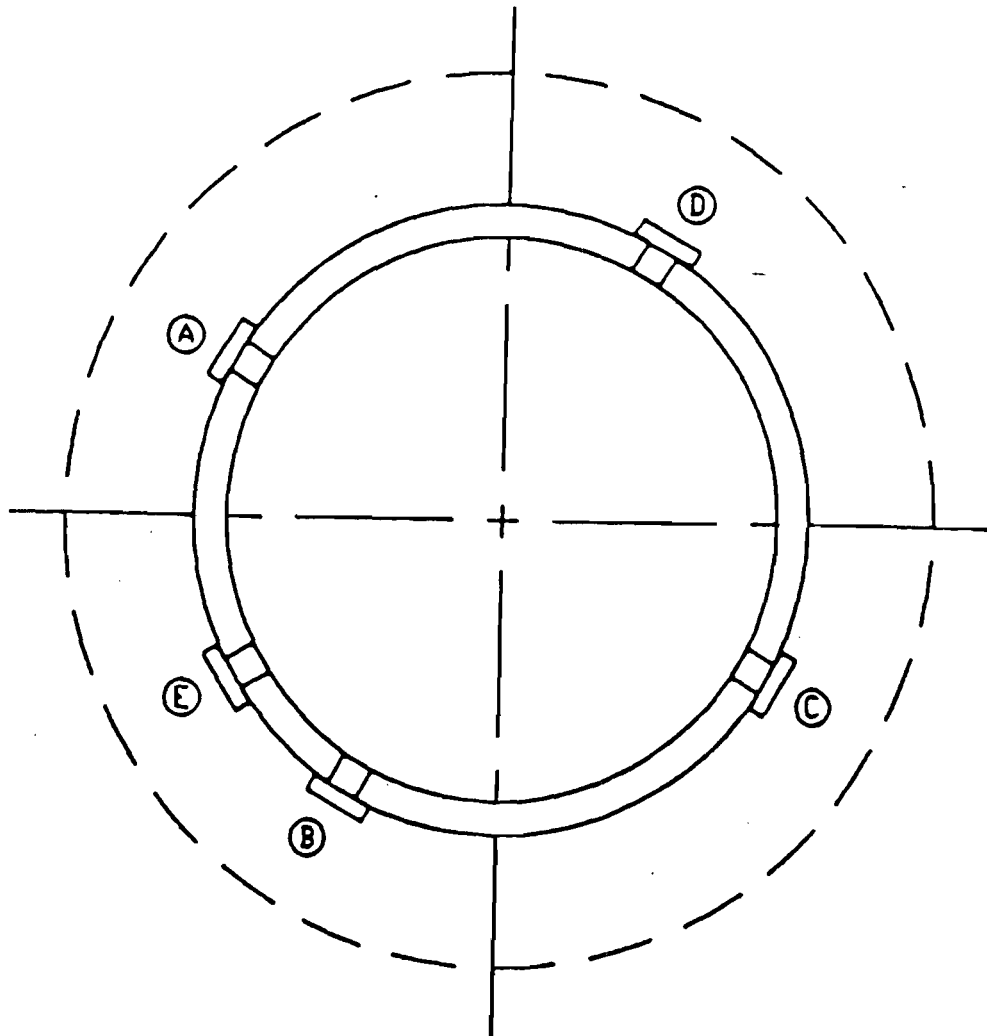
WESTINGHOUSE ELECTRIC CORPORATION  
POWER GENERATION BUSINESS UNIT - ORLANDO, FL

Issue Date:

Page: 13 of 14

FIGURE 2

AUBURNDALE COGENERATION FACILITY  
ARRANGEMENT OF TEST PORTS



- A, B, C, D - EPA SAMPLE PORTS 6', 150W, 90 DEGREES APART  
E - CEMS PORTS, 2 (1 AT ELEVATION 124', 1 AT ELEVATION 125' 6')

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TYPE  
ESP

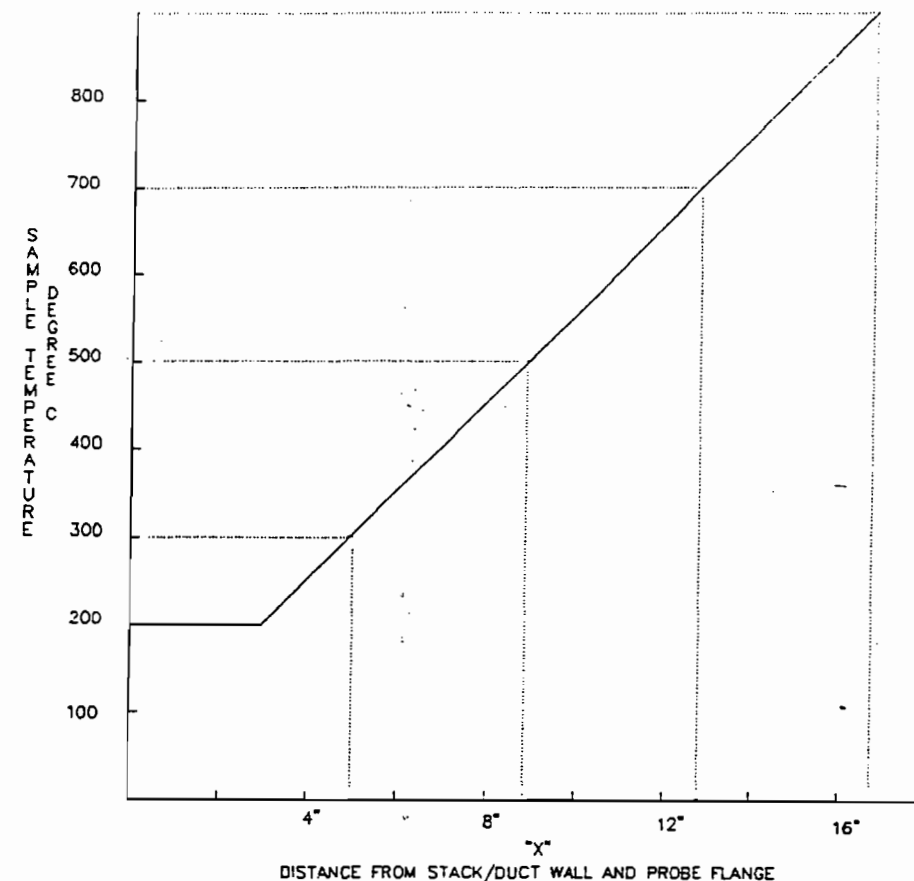
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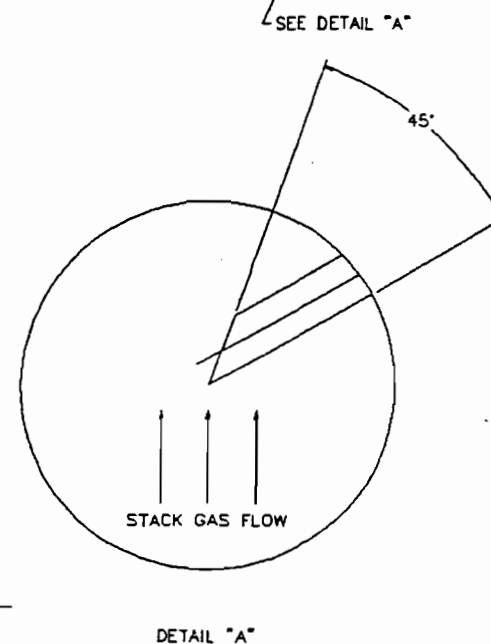
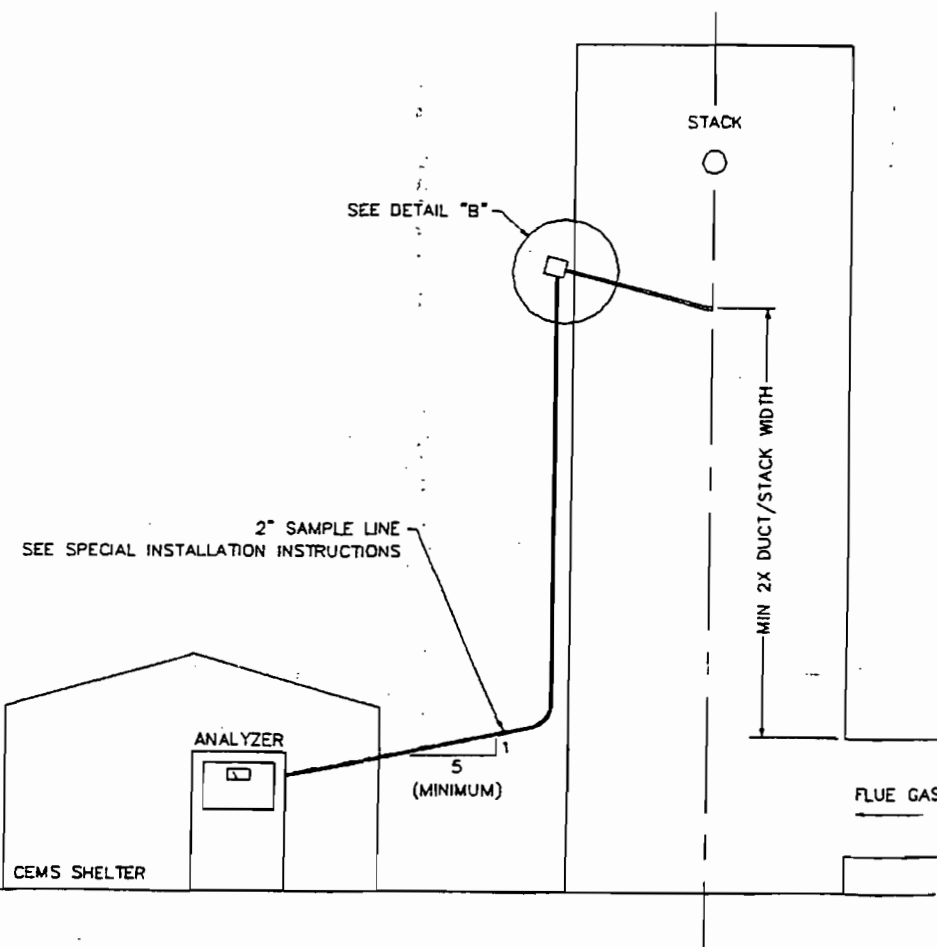
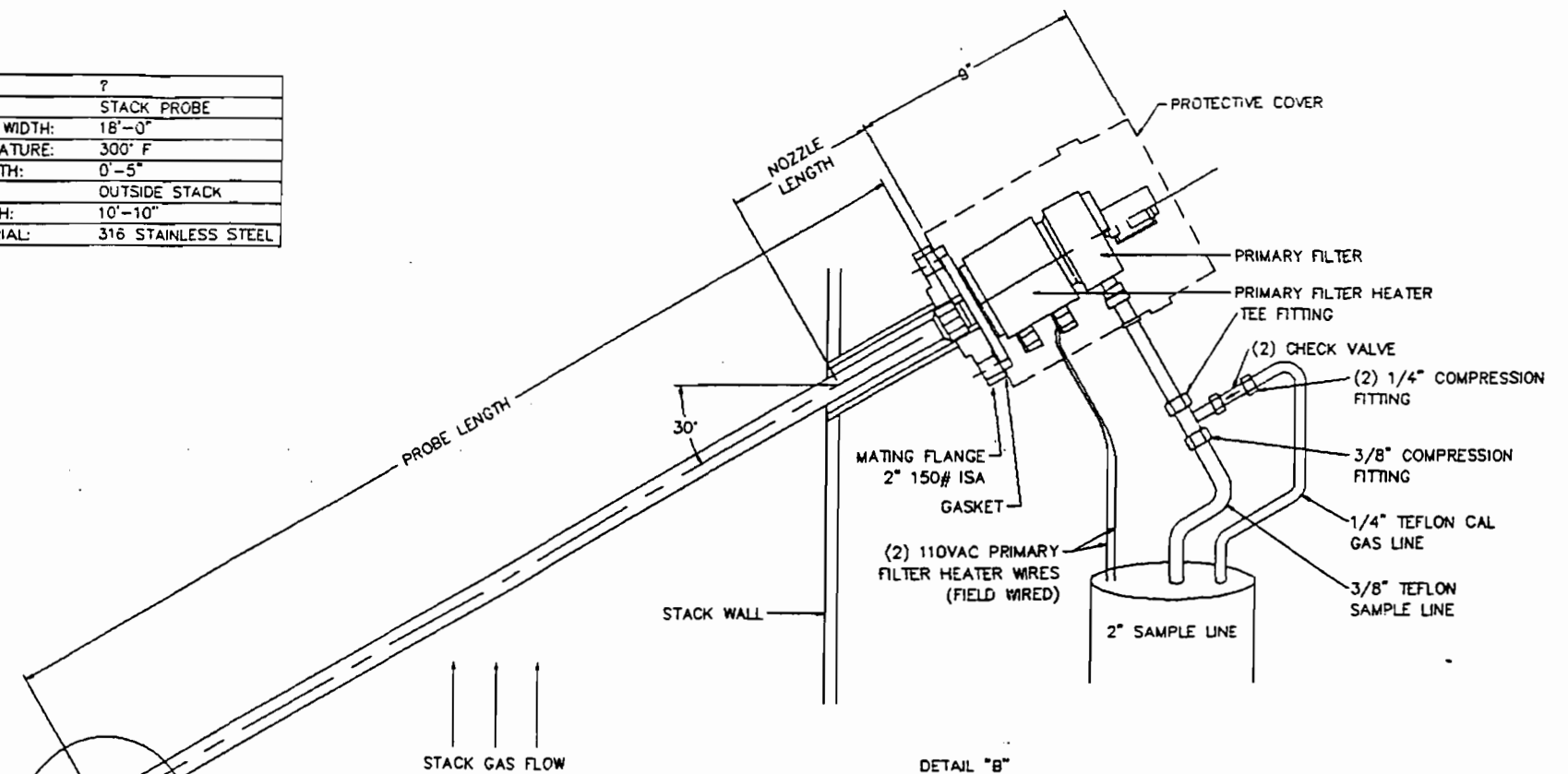
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Page: 14 of 14



TAG NUMBER:	?
DESCRIPTION:	STACK PROBE
DUCT/STACK WIDTH:	18'-0"
MAX. TEMPERATURE:	300° F
NOZZLE LENGTH:	0'-5"
INSULATION:	OUTSIDE STACK
PROBE LENGTH:	10'-10"
PROBE MATERIAL:	316 STAINLESS STEEL



#### SPECIAL INSTALLATION INSTRUCTIONS FOR SAMPLE LINE

- ROUTING: WHEN INSTALLING LENGTHS OVER 35 FEET, IT IS IMPORTANT TO UNDERSTAND THAT THE HOSE CANNOT SUPPORT ITS OWN WEIGHT. A HOSE SHOULD NOT BE PULLED INTO PLACE BUT POSITIONED CAREFULLY. THE ROUTING OF HEATED HOSES SHOULD BE CHOSEN TO TAKE ADVANTAGE OF EXISTING CABLE TRAYS, COLUMNS, BEAMS, PIPE SUPPORTS, ETC. HOSES MUST NOT BE ROUTED THROUGH OR NEAR AREAS WHERE HIGH AMBIENT TEMPERATURES EXIST, SUCH AS NEAR BOILERS OR STEAM LINES OR ANY DEVICE ABOVE 120 DEG F. WHEN INSTALLING MORE THAN ONE HEATED HOSE ON THE SAME SUPPORT, OR WHEN ROUTING HEATED HOSES ALONGSIDE OTHER HOSES, CABLES, OR PIPES, ALLOW 1 TO 2 INCHES OF SPACE BETWEEN THE HEATED HOSE AND THE OTHER LINE TO PREVENT OVERHEATING. DO NOT BUNDLE, COIL, OR OVERLAP HOSE(S) DURING OPERATION. THE CONCENTRATION OF HEAT WILL CAUSE SEVERE DAMAGE. WHEN SECURING HOSE IN PLACE, DO NOT COLLAPSE INSULATION. HORIZONTAL RUNS MUST HAVE A MINIMUM OF A 5:1 DROP RATIO TO PREVENT LOW SPOTS WHERE MOISTURE CAN COLLECT.
- SUPPORTS: FOR THIS DUAL TUBE HOSE, PROVIDE HORIZONTAL SUPPORTS EVERY 7 FEET AND VERTICAL SUPPORTS EVERY 15 FEET. MINIMUM BEND RADIUS 14 INCHES.
- CABLE TRAY: INDUSTRIAL GRADE CABLE TRAYS OR WIRE WAYS ARE BEST SUITED FOR HOSE INSTALLATION. IT IS RECOMMENDED THAT THE HOSE BE SECURED APPROXIMATELY EVERY 3 FEET WITH METAL OR PLASTIC TIES. IN MULTIPLE HOSE RUNS, IT IS ESSENTIAL TO PROVIDE 1-1/2 TO 2 INCHES SPACING BETWEEN HOSES AND SECURE THE HOSES EVERY 2 TO 3 FEET TO PREVENT HOSES FROM COMING INTO CONTACT WITH EACH OTHER. ALLOWING HOSES TO TOUCH CAN LEAD TO OVERHEATING, WHICH WILL DAMAGE THE HOSE.
- ANGLE IRON: ANGLE IRON CAN BE USED EFFECTIVELY TO SUPPORT LONG VERTICAL OR HORIZONTAL SINGLE HOSE RUNS. HOSES CAN BE SECURED TO THE ANGLE IRON WITH METAL OR PLASTIC TIES. HORIZONTAL RUNS SHOULD HAVE THE ANGLE IRON OVER THE HOSE TO PREVENT CONTAINMENT OF WATER, SNOW OR ICE. IT IS IMPORTANT TO SIZE THE ANGLE IRON CORRECTLY TO PROPERLY SUPPORT HOSE AND TO PREVENT DAMAGE TO CORE AND HEATER. DO NOT COLLAPSE INSULATION.
- CHANNEL IRON: CHANNEL IRON CAN BE UTILIZED IN THE SAME MANNER AS ANGLE IRON, AND CAN ACCEPT MULTIPLE HOSES. CHANNEL IRON IS NORMALLY MORE EXPENSIVE TO PURCHASE AND TO INSTALL COMPARED TO CABLE TRAYS. PROPER SPACING BETWEEN HOSES MUST BE MAINTAINED WHEN USING CHANNEL IRON.
- VERTICAL SUPPORTS: KELLUMS SPLIT STEEL (WIRE MESH) HANGERS CAN BE USED TO SUPPORT THE WEIGHT OF THE HOSE IF OTHER SUPPORT METHODS ARE NOT AVAILABLE. VERTICAL SUPPORT HANGERS SHOULD BE INSTALLED AS NOTED TO SUPPORT THE HOSE WEIGHT. THE HOSE WILL NOT SUPPORT ITS OWN WEIGHT IN A VERTICAL PULL, AND DRAGGING IT UP FROM THE END WILL MOST LIKELY DAMAGE THE HOSE. SPECIAL ATTENTION MUST ALSO BE PAID TO NOT EXCEED THE MINIMUM BEND RADIUS NOTED.
- POSSIBLE OVERHEATING: A FEW CONDITIONS TO AVOID WHICH CAN CAUSE OVERHEATING ARE (A) ADDITIONAL THERMAL INSULATION ON ANY PART OF THE HOSE, (B) HIGH AMBIENT TEMPERATURE CONDITIONS, AND (C) HIGH INPUT TEMPERATURE OF THE GAS OR LIQUID.

DRAWN FOR	DATE 02-SEP-93	ENERTEC, INC.		LANSDALE, PA (215) 362-0966
CHECK	DATE	USED ON WESTINGHOUSE AUBURNDALE		TITLE SAMPLE PROBE DETAIL & INSTALLATION
APPR	DATE	FILE NAME 1760204	SCALE NONE	SHEET OF DRAWING NO. 1760-204
COMPUTER GRAPHICS MANUAL CHANGES RESTRICTED		D		

APPENDIX C

Data



# Daily Stack Calibration Summary

COMPANY: Auburndale Power Partners  
 PLANT: Combustion Turbine  
 STACK: TURBINE on Node turbine

PERIOD START: January 12, 1995  
 PERIOD END: January 12, 1995  
 Created: 01/12/95 Page 1

## Ranges of Analyzers (ANALYZER:CHANNEL):

CO:CO: 0.0 - 200.0 ppm  
 O2:O2: 0.0 - 25.0 %  
 NOX\_OUT:NOx out: 0.0 - 200.0 ppm

Date	Time	CHANNEL	TYPE	EXPECTED	ACTUAL	ABS	% RANGE	ALLOWANCE Units	%
01/12/95	19:07	NOx out	SPAN	171.5	173.6	2.1	1.1%	10.0	5.0% P
01/12/95	19:07	NOx out	ZERO	0.0	0.1	0.1	0.1%	10.0	5.0% P
01/12/95	19:07	O2	SPAN	22.6	22.5	0.1	0.4%	0.5	2.0% P
01/12/95	19:07	O2	ZERO	0.0	0.1	0.1	0.2%	0.5	2.0% P
01/12/95	19:07	CO	SPAN	181.0	182.9	1.9	0.9%	20.0	10.0% P
01/12/95	19:07	CO	ZERO	0.0	0.0	0.0	0.0%	20.0	10.0% P
01/12/95	18:06	NOx out	SPAN	104.0	105.4	1.4	0.7%	10.0	5.0% P
01/12/95	18:06	NOx out	ZERO	0.0	0.0	0.0	0.0%	10.0	5.0% P
01/12/95	18:06	O2	SPAN	9.9	9.9	0.0	0.0%	0.5	2.0% P
01/12/95	18:06	O2	ZERO	0.0	0.0	0.0	0.0%	0.5	2.0% P
01/12/95	18:06	CO	SPAN	104.0	105.5	1.5	0.8%	20.0	10.0% P
01/12/95	18:06	CO	ZERO	0.0	-0.2	0.2	0.1%	20.0	10.0% P
01/12/95	17:19	NOx out	SPAN	104.0	106.5	2.5	1.3%	10.0	5.0% P
01/12/95	17:19	NOx out	ZERO	0.0	0.0	0.0	0.0%	10.0	5.0% P
01/12/95	17:19	O2	SPAN	9.9	9.9	0.0	0.0%	0.5	2.0% P
01/12/95	17:19	O2	ZERO	0.0	0.0	0.0	0.0%	0.5	2.0% P
01/12/95	17:19	CO	SPAN	104.0	105.2	1.2	0.6%	20.0	10.0% P
01/12/95	17:19	CO	ZERO	0.0	-0.1	0.1	0.1%	20.0	10.0% P
01/12/95	16:31	NOx out	SPAN	101.0	106.0	5.0	2.5%	10.0	5.0% P
01/12/95	16:31	NOx out	ZERO	0.0	0.0	0.0	0.0%	10.0	5.0% P
01/12/95	16:31	O2	SPAN	9.9	9.9	0.0	0.1%	0.5	2.0% P
01/12/95	16:31	O2	ZERO	0.0	0.0	0.0	0.0%	0.5	2.0% P

	CO	O2	NOx out
P - Pass	< 10.00%	< 2.00%	< 5.00%
F - Fail	> 10.00%	> 2.00%	> 5.00%

# Daily Stack Calibration Summary

COMPANY: Auburndale Power Partners  
 PLANT: Combustion Turbine  
 STACK: TURBINE on Node turbine

PERIOD START: January 12, 1995  
 PERIOD END: January 12, 1995  
 Created: 01/12/95 Page 2

## Ranges of Analyzers (ANALYZER:CHANNEL):

CO:CO: 0.0 - 200.0 ppm  
 O2:O2: 0.0 - 25.0 %  
 NOX\_OUT:NOx out: 0.0 - 200.0 ppm

Date	Time	CHANNEL	TYPE	EXPECTED	ACTUAL	ABS	% RANGE	ALLOWANCE Units	%
01/12/95	16:31	CO	SPAN	104.0	105.4	1.4	0.7%	20.0	10.0% P
01/12/95	16:31	CO	ZERO	0.0	-0.3	0.3	0.2%	20.0	10.0% P
01/12/95	15:10	NOx out	SPAN	57.2	59.5	2.3	1.1%	10.0	5.0% P
01/12/95	15:10	NOx out	ZERO	0.0	0.0	0.0	0.0%	10.0	5.0% P
01/12/95	15:10	O2	SPAN	5.0	4.9	0.0	0.1%	0.5	2.0% P
01/12/95	15:10	O2	ZERO	0.0	0.0	0.0	0.0%	0.5	2.0% P
01/12/95	15:10	CO	SPAN	43.9	45.1	1.2	0.6%	20.0	10.0% P
01/12/95	15:10	CO	ZERO	0.0	-0.3	0.3	0.2%	20.0	10.0% P
01/12/95	14:15	NOx out	SPAN	57.2	59.3	2.1	1.0%	10.0	5.0% P
01/12/95	14:15	NOx out	ZERO	0.0	0.0	0.0	0.0%	10.0	5.0% P
01/12/95	14:15	O2	SPAN	5.0	4.9	0.0	0.1%	0.5	2.0% P
01/12/95	14:15	O2	ZERO	0.0	0.0	0.0	0.0%	0.5	2.0% P
01/12/95	14:15	CO	SPAN	43.9	45.0	1.1	0.5%	20.0	10.0% P
01/12/95	14:15	CO	ZERO	0.0	-0.3	0.3	0.2%	20.0	10.0% P
01/12/95	13:19	NOx out	SPAN	57.2	59.3	2.1	1.0%	10.0	5.0% P
01/12/95	13:19	NOx out	ZERO	0.0	0.1	0.1	0.1%	10.0	5.0% P
01/12/95	13:19	O2	SPAN	5.0	4.9	0.0	0.1%	0.5	2.0% P
01/12/95	13:19	O2	ZERO	0.0	0.0	0.0	0.0%	0.5	2.0% P
01/12/95	13:19	CO	SPAN	43.9	45.1	1.2	0.6%	20.0	10.0% P
01/12/95	13:19	CO	ZERO	0.0	-0.1	0.1	0.1%	20.0	10.0% P
01/12/95	07:00	NOx out	SPAN	171.5	171.1	0.4	0.2%	10.0	5.0% P
01/12/95	07:00	NOx out	ZERO	0.0	0.0	0.0	0.0%	10.0	5.0% P

	CO	O2	NOx out
P - Pass	< 10.00%	< 2.00%	< 5.00%
F - Fail	> 10.00%	> 2.00%	> 5.00%

# Daily Stack Calibration Summary

COMPANY: Auburndale Power Partners  
 PLANT: Combustion Turbine  
 STACK: TURBINE on Node turbine

PERIOD START: January 12, 1995  
 PERIOD END: January 12, 1995  
 Created: 01/12/95 Page 3

## Ranges of Analyzers (ANALYZER:CHANNEL):

CO:CO: 0.0 - 200.0 ppm  
 O2:O2: 0.0 - 25.0 %  
 NOX\_OUT:NOx out: 0.0 - 200.0 ppm

Date	Time	CHANNEL	TYPE	EXPECTED	ACTUAL	ABS	% RANGE	ALLOWANCE	
								Units	%
01/12/95	07:00	O2	SPAN	22.6	22.6	0.0	0.1%	0.5	2.0% P
01/12/95	07:00	O2	ZERO	0.0	0.0	0.0	0.2%	0.5	2.0% P
01/12/95	07:00	CO	SPAN	181.0	180.3	0.7	0.3%	20.0	10.0% P
01/12/95	07:00	CO	ZERO	0.0	0.0	0.0	0.0%	20.0	10.0% P

	CO	O2	NOx out
P - Pass	< 10.00%	< 2.00%	< 5.00%
F - Fail	> 10.00%	> 2.00%	> 5.00%

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 1

FROM 01/12/95 TO 01/12/95

CO					O2				
DATE	CAL VALUE (ppm )	VALUE READ (ppm )	ABS DIFF	% of SPAN	DATE	CAL VALUE ( % )	VALUE READ ( % )	ABS DIFF	% of SPAN
01/12 13:19	0.0	-0.1	-0.1		01/12 13:19	0.0	0.0	0.0	
01/12 13:19	43.9	45.1	1.2	0.6	01/12 13:19	5.0	4.9	0.0	-0.1

Zero Average Drift: -0.2  
Span Average Drift: 1.1

Zero Average Drift: 0.0  
Span Average Drift: 0.0

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 2

FROM 01/12/95 TO 01/12/95

NOx out

DATE	CAL VALUE (ppm )	VALUE READ (ppm )	ABS DIFF	% of SPAN
01/12 13:19	0.0	0.1	0.1	
01/12 13:19	57.2	59.3	2.1	1.0

Zero Average Drift: 0.1  
Span Average Drift: 2.1

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 1

FROM 01/12/95 TO 01/12/95

CO					O2				
DATE	CAL VALUE (ppm)	VALUE READ (ppm)	ABS DIFF	% of SPAN	DATE	CAL VALUE (%)	VALUE READ (%)	ABS DIFF	% of SPAN
01/12 14:15	0.0	-0.3	-0.3		01/12 14:15	0.0	0.0	0.0	
01/12 14:15	43.9	45.0	1.1	0.5	01/12 14:15	5.0	4.9	0.0	-0.1

Zero Average Drift: -0.3  
Span Average Drift: 1.1

Zero Average Drift: 0.0  
Span Average Drift: 0.0

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 2

FROM 01/12/95 TO 01/12/95

NOx out

DATE	CAL VALUE (ppm )	VALUE READ (ppm )	ABS DIFF	% of SPAN
01/12 14:15	0.0	0.0	0.0	
01/12 14:15	57.2	59.3	2.1	1.0

Zero Average Drift: 0.0  
Span Average Drift: 2.2

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 1

FROM 01/12/95 TO 01/12/95

CO					O2				
DATE	CAL VALUE (ppm)	VALUE READ (ppm)	ABS DIFF	% of SPAN	DATE	CAL VALUE (%)	VALUE READ (%)	ABS DIFF	% of SPAN
01/12 15:10	0.0	-0.3	-0.3		01/12 15:10	0.0	0.0	0.0	
01/12 15:10	43.9	45.1	1.2	0.6	01/12 15:10	5.0	4.9	0.0	-0.1

Zero Average Drift: -0.3  
Span Average Drift: 1.2

Zero Average Drift: 0.0  
Span Average Drift: 0.0



Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 2

FROM 01/12/95 TO 01/12/95

NOx out

DATE	CAL VALUE (ppm )	VALUE READ (ppm )	ABS DIFF	% of SPAN
01/12 15:10	0.0	0.0	0.0	
01/12 15:10	57.2	59.5	2.3	1.1

Zero Average Drift: 0.0  
Span Average Drift: 2.3

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 1

FROM 01/12/95 TO 01/12/95

CO					O2				
DATE	CAL VALUE (ppm )	VALUE READ (ppm )	ABS DIFF	% of SPAN	DATE	CAL VALUE ( % )	VALUE READ ( % )	ABS DIFF	% of SPAN
01/12 16:31	0.0	-0.3	-0.3		01/12 16:31	0.0	0.0	0.0	
01/12 16:31	104.0	105.4	1.4	0.7	01/12 16:31	9.9	9.9	0.0	-0.1
01/12 17:19	0.0	-0.1	-0.1		01/12 17:19	0.0	0.0	0.0	
01/12 17:19	104.0	105.2	1.2	0.6	01/12 17:19	9.9	9.9	0.0	0.0

Zero Average Drift: -0.2  
Span Average Drift: 1.4

Zero Average Drift: 0.0  
Span Average Drift: 0.0

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 2

FROM 01/12/95 TO 01/12/95

NOx out

DATE	CAL VALUE (ppm )	VALUE READ (ppm )	ABS DIFF	% of SPAN
01/12 16:31	0.0	0.0	0.0	
01/12 16:31	101.0	106.0	5.0	2.5
01/12 17:19	0.0	0.0	0.0	
01/12 17:19	104.0	106.5	2.5	1.3

Zero Average Drift: 0.0  
Span Average Drift: 3.0

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 1

FROM 01/12/95 TO 01/12/95

CO					O2				
DATE	CAL VALUE (ppm )	VALUE READ (ppm )	ABS DIFF	% of SPAN	DATE	CAL VALUE ( % )	VALUE READ ( % )	ABS DIFF	% of SPAN
01/12 18:06	0.0	-0.2	-0.2		01/12 18:06	0.0	0.0	0.0	
01/12 18:06	104.0	105.5	1.5	0.7	01/12 18:06	9.9	9.9	0.0	0.0

Zero Average Drift: -0.1  
Span Average Drift: 1.7

Zero Average Drift: 0.0  
Span Average Drift: 0.0

Auburndale Power Partners  
1501 Derby Ave.  
CALIBRATION DRIFT REPORT

PAGE 2

FROM 01/12/95 TO 01/12/95

NOx out

DATE	CAL VALUE (ppm )	VALUE READ (ppm )	ABS DIFF	% of SPAN
01/12 18:06	0.0	0.0	0.0	
01/12 18:06	104.0	105.4	1.4	0.7

Zero Average Drift: 0.0  
Span Average Drift: 1.4

APPENDIX D

Certified Gas Standards Data



213-585-2154  
FAX# 213-585-0582

## LIQUID CARBONIC

CYLINDER GAS PRODUCTS

5700 SOUTH ALAMEDA STREET • LOS ANGELES, CA 90058

### CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER TAMPA OXYGEN & WELDING

P.O NUMBER 28680

#### REFERENCE STANDARD

COMPONENT

NITRIC OXIDE GMIS

NIST SRM NO.

vs 1685b

CYLINDER NO.

SGAL 1069

CONCENTRATION

84.0 ppm

#### ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	NITRIC OXIDE	GMIS	ANALYZER MAKE-MODEL-S/N	Beckman 951A	S/N 0101354		
ANALYTICAL PRINCIPLE		Chemiluminescence	LAST CALIBRATION DATE		11/30/94		
FIRST ANALYSIS DATE		12/19/94	SECOND ANALYSIS DATE		12/27/94		
Z 0	R 744	C 507	CONC. 57.2 ppm	Z 0	R 676	C 458	CONC. 56.9 ppm
R 742	Z 0	C 506	CONC. 57.3 ppm	R 676	Z -3	C 459	CONC. 57.2 ppm
Z 0	C 506	R 741	CONC. 57.4 ppm	Z -2	C 458	R 676	CONC. 57.0 ppm
U/M	mV	MEAN TEST ASSAY 57.3 ppm		U/M	mV	MEAN TEST ASSAY 57.0 ppm	

Values not valid below 150 psig

THIS CYLINDER NO. SA 8828

HAS BEEN CERTIFIED ACCORDING TO SECTION

EPA-600/R93/224

OF TRACEABILITY PROTOCOL NO.

REV. 9/93

PROCEDURE G1

CERTIFIED ACCURACY  $\pm 1$  % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 12/27/94

EXPIRATION DATE 12/27/96 TERM 24 MONTHS

#### CERTIFIED CONCENTRATION

NITRIC OXIDE 57.2 ppm

NITROGEN BALANCE

NOx 58.3 ppm

ANALYZED BY

TY TRIPLETT

CERTIFIED BY

SAHAR ALAMY



213-585-2154  
FAX# 213-585-0582

# LIQUID CARBONIC

CYLINDER GAS PRODUCTS

5700 SOUTH ALAMEDA STREET • LOS ANGELES, CA 90058

## CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER SD & GE

P.O NUMBER 28680

### REFERENCE STANDARD

COMPONENT

NITRIC OXIDE

GMIS

NIST SRM NO.

vs 1685b

CYLINDER NO.

SGAL 1069

CONCENTRATION

84.0 ppm

### ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	NITRIC OXIDE	GMIS	ANALYZER MAKE-MODEL-S/N	Beckman 951A	S/N 0101354
ANALYTICAL PRINCIPLE		Chemiluminescence		LAST CALIBRATION DATE	
FIRST ANALYSIS DATE		12/19/94		SECOND ANALYSIS DATE	
Z 0	R 860	C 897	CONC. 101 ppm	Z 0	R 676
R 860	Z 0	C 898	CONC. 101 ppm	R 676	Z -3
Z 0	C 903	R 863	CONC. 101 ppm	Z -2	C 818
U/M	mV	MEAN TEST ASSAY	101 ppm	U/M	mV

Values not valid below 150 psig

FIRST ANALYSIS VS SGAL 1684: 96.6 ppm NITIC OXIDE

THIS CYLINDER NO. SA 15515

HAS BEEN CERTIFIED ACCORDING TO SECTION

EPA-600/R93/224

OF TRACEABILITY PROTOCOL NO.

REV. 9/93

PROCEDURE

G1

CERTIFIED ACCURACY  $\pm 1$  % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 12/27/94

EXPIRATION DATE 12/27/96 TERM 24 MONTHS

### CERTIFIED CONCENTRATION

NITRIC OXIDE 101 ppm

NITROGEN BALANCE

NOx 104 ppm

ANALYZED BY

*Ty Triplett*  
TY TRIPLETT

CERTIFIED BY

*George Gibson*  
GEORGE GIBSON





213-585-2154  
FAX# 213-585-0582

## LIQUID CARBONIC

CYLINDER GAS PRODUCTS

5700 SOUTH ALAMEDA STREET • LOS ANGELES, CA 90058

### CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER TAMPA OXYGEN & WELDING

P.O NUMBER 28680

#### REFERENCE STANDARD

COMPONENT  
OXYGEN

GMIS

NIST SRM NO.  
vs 2658a

CYLINDER NO.  
SA 12072

CONCENTRATION  
10.10 %

#### ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	OXYGEN	GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Oxymat 5E S/N A12-839
ANALYTICAL PRINCIPLE		Paramagnetic	LAST CALIBRATION DATE 12/14/94	
FIRST ANALYSIS DATE		12/19/94	SECOND ANALYSIS DATE	
Z 0.00	R 10.10	C 4.98	CONC. 4.98 %	Z R C CONC.
R 10.10	Z 0.00	C 4.98	CONC. 4.98 %	R Z C CONC.
Z 0.00	C 4.96	R 10.10	CONC. 4.96 %	Z C R CONC.
U/M %		MEAN TEST ASSAY	4.97 %	U/M % MEAN TEST ASSAY

Values not valid below 150 psig

THIS CYLINDER NO. SA 14352

HAS BEEN CERTIFIED ACCORDING TO SECTION EPA-600/893/224  
OF TRACEABILITY PROTOCOL NO. REV. 9/93

PROCEDURE G1

CERTIFIED ACCURACY  $\pm 1$  % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 12/19/94

EXPIRATION DATE 12/19/97 TERM 36 MONTHS

CERTIFIED CONCENTRATION

OXYGEN	4.97 %
NITROGEN	BALANCE

ANALYZED BY

TY TRIPLETT

CERTIFIED BY

KWAN YOUNG



213-585-2154  
FAX# 213-585-0582

# LIQUID CARBONIC

CYLINDER GAS PRODUCTS

5700 SOUTH ALAMEDA STREET • LOS ANGELES, CA 90058

## CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER TAMPA OXYGEN & WELDING

P.O NUMBER 28680

### REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
OXYGEN	GMIS vs 2658a	SA 12072	10.10 %

### ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	OXYGEN	GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Oxymat 5E S/N A12-839
ANALYTICAL PRINCIPLE		Paramagnetic		LAST CALIBRATION DATE 12/14/94
FIRST ANALYSIS DATE		12/19/94		SECOND ANALYSIS DATE
Z 0.00	R 10.10	C 9.90	CONC. 9.90 %	Z R C CONC.
R 10.10	Z 0.00	C 9.90	CONC. 9.90 %	R Z C CONC.
Z 0.00	C 9.90	R 10.10	CONC. 9.90 %	Z C R CONC.
U/M %		MEAN TEST ASSAY 9.90 %	U/M %	MEAN TEST ASSAY

Values not valid below 150 psig

THIS CYLINDER NO.	SA 14734	CERTIFIED CONCENTRATION	
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA-600/R93/224	OXYGEN	9.90 %
OF TRACEABILITY PROTOCOL NO.	REV. 9/93	NITROGEN	BALANCE
PROCEDURE	G1		
CERTIFIED ACCURACY	± 1 % NIST TRACEABLE		
CYLINDER PRESSURE	2000 PSIG		
CERTIFICATION DATE	12/19/94		
EXPIRATION DATE	12/19/97	TERM	36 MONTHS

ANALYZED BY

TY TRIPLETT

CERTIFIED BY

KWAK YOUNG



213-585-2154  
FAX# 213-585-0582

## LIQUID CARBONIC

CYLINDER GAS PRODUCTS

5700 SOUTH ALAMEDA STREET • LOS ANGELES, CA 90058

### CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER TAMPA OXYGEN & WELDING

P.O NUMBER 28680

#### REFERENCE STANDARD

COMPONENT  
CARBON MONOXIDE GMIS

NIST SRM NO.  
vs 1678c

CYLINDER NO.  
CC50893

CONCENTRATION  
50.6 ppm

#### ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	CARBON MONOXIDE	GMIS	ANALYZER MAKE-MODEL-S/N	Siemens Ultramat 5E	S/N A12-729		
ANALYTICAL PRINCIPLE	NDIR		LAST CALIBRATION DATE	12/14/94			
FIRST ANALYSIS DATE	07/12/94		SECOND ANALYSIS DATE	07/19/94			
Z 0.0	R 99.0	C 43.8	CONC. 43.8 ppm	Z 0.0	R 50.6	C 44.0	CONC. 44.0 ppm
R 99.0	Z 0.0	C 43.7	CONC. 43.7 ppm	R 50.6	Z 0.0	C 43.8	CONC. 43.8 ppm
Z 0.0	C 43.8	R 99.0	CONC. 43.8 ppm	Z 0.0	C 43.8	R 50.6	CONC. 43.8 ppm
U/M ppm		MEAN TEST ASSAY	43.8 ppm	U/M ppm		MEAN TEST ASSAY	43.9 ppm

Values not valid below 150 psig

First analysis vs SA 6111 : 99.0 ppm Carbon Monoxide

THIS CYLINDER NO.	CC 56982	CERTIFIED CONCENTRATION	
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA-600/R93/224	CARBON MONOXIDE	43.9 ppm
OF TRACEABILITY PROTOCOL NO.	Rev. 9/93	NITROGEN	BALANCE
PROCEDURE	G1		
CERTIFIED ACCURACY	± 1 % NIST TRACEABLE		
CYLINDER PRESSURE	1650 PSIG		
CERTIFICATION DATE	07/19/94		
EXPIRATION DATE	07/19/97	TERM	36 MONTHS

ANALYZED BY

SA TRIPLETS

CERTIFIED BY

KWAN YOUNG



213-585-2154  
FAX# 213-585-0582

## LIQUID CARBONIC

CYLINDER GAS PRODUCTS

5700 SOUTH ALAMEDA STREET • LOS ANGELES, CA 90058

### CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER TAMPA OXYGEN & WELDING

P.O NUMBER 28680

#### REFERENCE STANDARD

COMPONENT  
CARBON MONOXIDE GMS

NIST SRM NO.  
vs 2630

CYLINDER NO.  
CC 67856

CONCENTRATION  
249 ppm

#### ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	CARBON MONOXIDE	GMS	ANALYZER MAKE-MODEL-S/N	Siemens Ultramat 5E	S/N A12-729		
ANALYTICAL PRINCIPLE	NDIR		LAST CALIBRATION DATE	12/14/94			
FIRST ANALYSIS DATE	09/02/92		SECOND ANALYSIS DATE	07/19/94			
Z 0	R 236	C 102	CONC. 102 ppm	Z 0	R 249	C 107	CONC. 107 ppm
R 236	Z 0	C 103	CONC. 103 ppm	R 249	Z 0	C 106	CONC. 106 ppm
Z 0	C 102	R 236	CONC. 102 ppm	Z 0	C 106	R 249	CONC. 106 ppm
U/M	ppm	MEAN TEST ASSAY	102 ppm	U/M	ppm	MEAN TEST ASSAY	106 ppm

Values not valid below 150 psig

First analysis vs SGAL 2276 : 236 ppm Carbon Monoxide

THIS CYLINDER NO. SA 4803

HAS BEEN CERTIFIED ACCORDING TO SECTION

EPA-600/R93/224

OF TRACEABILITY PROTOCOL NO.

Rev. 9/93

PROCEDURE G1

CERTIFIED ACCURACY  $\pm 1$  % NIST TRACEABLE

CYLINDER PRESSURE 1650 PSIG

CERTIFICATION DATE 07/19/94

EXPIRATION DATE 07/19/97 TERM 36 MONTHS

#### CERTIFIED CONCENTRATION

CARBON MONOXIDE

104 ppm

NITROGEN

BALANCE

ANALYZED BY

*[Signature]*  
TY TRIPLETT

CERTIFIED BY

*[Signature]*  
KHAN-YOUNG

**AUBURNDALE POWER PARTNERS,**  
***LIMITED PARTNERSHIP***

---

Appendix D

Conversation Record Form

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
SOUTHWEST DISTRICT

CONVERSATION RECORD

Auburndale Power Plant  
CEM QA/CGA Last Qtr

Date 12/6/94

Subject Ridge Gen Station Rd

Time 2:10 pm

Permit No. AC53-208321 / PSD-FL-85  
AC53-206244 / PSD-183 R.S.

County Polk

Mr. Jim Franklin

Telephone No. 884-8268

Representing Pace

☒ Telephoned Me

☒ Was Called

☐ Scheduled Meeting

☐ Unscheduled Meet.

Other Individuals Involved in Conversation/Meeting None

Summary of Conversation/Meeting Mr. Franklin stated he was having problems obtaining gases for the audit (Planned for the last 2 weeks in Dec. 94)  
He requested that the Dept. grant an extension to allow the CGA for the last quarter of 1994, to be done the first or third week in Jan. 95. They would perform an additional audit for the first quarter of 1995. In as the permit requires CEMs for Opacity, NOX, CO and SO<sub>2</sub> to be installed and <sup>pollutants</sup> tested at 100% and 75% of operating load but, does not cite specific regulations (CFR, 62-296.297) for the requirement of the CEMs, I will grant an extension on this QA matter of maintaining the monitors (CEMs).

40 CFR 60 subpart Db appears to apply where NOX and opacity monitors are required but, Db is not cited in the permit.

(continue on another sheet, if necessary)

Signature

Robert Lich

Eng. II Air Compliance



# Department of Environmental Protection

*Permit file*

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

March 18, 1996

## CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Don Fields  
Executive Director  
Auburndale Power Partners, L. P.  
1501 Derby Avenue  
Auburndale, Florida 33823

Dear Mr. Fields:

RE: Amendment to Construction Permit No. AC53-208321, PSD-FL-185(B)  
AIRS ID No. 1050221-001-AC

The Department has reviewed your September 15 request to delete the annual testing requirements for sulfuric acid mist and VOC's emissions. The Department's determination on this amendment request is as follows:

### **Amendment of the annual testing requirements.**

### **Specific Condition No. 8 is amended as follows.**

#### **From:**

8. Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, and VOC standards shall be determined (while operating at 95-100% of the permitted maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July 1991 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission form Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
- Method 25 A. Determination of the Volatile Organic Compounds Emissions from Stationary Sources.

Other DER approved methods may be used for compliance testing after prior Departmental approval.

*"Protect, Conserve and Manage Florida's Environment and Natural Resources"*

*Printed on recycled paper.*

**To:**

8. Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, VOC, and H<sub>2</sub>SO<sub>4</sub> mist standards shall be determined (while operating at 95-100% of the permitted maximum heat rate input) within 180 days of initial operation and annually thereafter **for all pollutants except for VOC and H<sub>2</sub>SO<sub>4</sub> mist**, by the following reference methods as described in 40 CFR 60, Appendix A (July 1991 version) and adopted by reference in F.A.C. Rule 62-297.400. **The compliance testing for VOC and H<sub>2</sub>SO<sub>4</sub> mist will be required upon permit renewal (every 5 years).**

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Source **(upon permit renewal).**
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission form Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
- Method 25A. Determination of the Volatile Organic Compounds Emissions from Stationary Sources **(upon permit renewal).**

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

This letter amendment must be attached to the construction permit, No. AC 53 - 208321, PSD-FL-185, and shall become part of the permit.

Sincerely,



Howard L. Rhodes, Director  
Division of Air Resources  
Management

HLR/aal/kw

cc: B. Thomas, SWD  
J. Harper, EPA  
J. Bunyak, NPS  
T. Davis, P. E.





# Department of Environmental Protection

Lawton Chiles  
Governor

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

Virginia B. Wetherell  
Secretary

October 27, 1995

Mr. Brian Beals, Chief  
Source Evaluation Unit  
Air Enforcement Branch  
Air, Pesticides and Toxics  
Management Division  
United States Environmental  
Protection Agency, Region 4  
345 Courtland Street, Northeast  
Atlanta, Georgia 30365

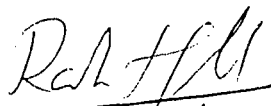
RE: Auburndale Cogeneration Facility - Unit 1  
Title IV Appendix D Certification Application

Dear Mr. Beals:

The Emissions Monitoring Section has reviewed the Title IV Appendix D certification which was resubmitted for Unit 1 at Auburndale Cogeneration Facility. Based upon the review, it is recommended that the gas fuel flowmeter system (System 101) and the oil fuel flowmeter system (System 102) be certified for the use under the acid rain rules promulgated in 40 CFR Part 75, Appendix D.

If you have any questions about the recommendations made in this letter, please contact Ramesh Menon at 904/488-6140 or write to me.

Sincerely,

*For*   
Michael D. Harley, P.E., DEE  
P.E. Administrator  
Emissions Monitoring Section

MDH: rm

cc: William Thomas, Southwest District

## STEP 2

Complete Table B for the unit or stack identified in Part 1, using the codes at the bottom of the columns when appropriate

TABLE B: MONITORING SYSTEMS/ANALYTICAL COMPONENTS

SYSTEM				ANALYTICAL COMPONENTS AND DAHS SOFTWARE					
(1) Status	(2) System ID#	(3) Parameter Monitored	(4) Primary/Backup	(5) Component Type	(6) Component ID#	(7) Sample Acquisition Method	(8) Manufacturer	(9) Model or Version	(10) Serial #
A	101	GAS	P	GFFM	011	ORF	TRI-FLO	PT-10	1 FGA-FE-1
A				PLC	911		GENERAL ELECTRIC	90/30	59324
A				DAHS	921		MICRONICS	486DX/66 MHz	G02456
A				DAHS	931		ENERTEC "SNIFFER"	R4.4.9D	1760AUBURN-449
A	102	OILV	P	OFFM	021	TUR	ITT BARTON	8003	8003-10246
A				PLC	911		GENERAL ELECTRIC	90/30	59324
A				DAHS	921		MICRONICS	486DX/66 MHz	G02456
A				DAHS	931		ENERTEC "SNIFFER"	R4.4.9D	1760AUBURN-449

(1) A - Add C - Correct D - Delete U - Unchanged	(3) CO2 SO2 NOx FLOW OP - Opacity OILM - Mass Oil Flow OILV - Volumetric Oil Flow GAS SOI - SO2 Inlet SOO - SO2 Outlet	(4) P - Primary B - Backup RB - Redundant Backup RM - Reference Method Backup DB - Data Backup	(5) DAHS CO2 SO2 NOx O2 H2O FLOW OP - Opacity PRB - Probe PLC	Fuel Flowmeter Component Types GFFM - Gas Fuel Flow Meter OFFM - Oil Fuel Flow Meter DP - Differential Pressure PRES - Pressure TEMP - Temperature GCH - Gas Chromatograph	(7) Concentration/Diluent IS - In Situ ISP - Point/Path In Situ ISC - Cross Stack In Situ DIL - Dilution DIN - Dilution In Stack DOU - Dilution Out-of-Stack EXT - Extractive	Volumetric Flow DP - Diff. Pressure U - Ultrasonic T - Thermal O - Other	Fuel Flowmeter ORF - Orifice NOZ - Nozzle VEN - Venturi U - Ultrasonic VTX - Vortex PDP - Positive Displacement COR - Coriolis TUR - Turbine O - Other (see instructions)
--	--	---	---	--	---	--	--

DRAFT FORM 7/15/94

Date 01/27/95

**AUBURNDALE POWER PARTNERS,  
LIMITED PARTNERSHIP**

---

April 25, 1995

Mr. Bob Soich, Compliance Engineer  
Florida Department of Environmental Protection  
Division of Air Resource Management  
Southwest District  
3804 Coconut Palm Drive  
Tampa, FL 33619

D.E.P.

APR 27 1995

TAMPA DISTRICT

Re: Steam to Fuel Ratio Curve  
Auburndale Power Partners (APP), Limited Partnership  
Permit Number: AC 53-208321; PSD-FL-185

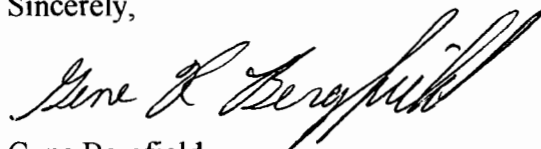
Dear Mr. Soich:

We are submitting for your information a copy of the steam to fuel ratio curve referenced under specific condition 17 of our construction permit. You had requested this curve during your visit to the Auburndale Power Partners cogeneration facility on April 13, 1995.

Shortly after your visit, we submitted you a copy of the steam to power curve and informed you, on letter dated April 14, 1995, that we had contacted Westinghouse Electric Corporation in Orlando for copies of the steam to fuel ratio curve. This curve has just been received at the APP facility and is being forwarded to you as requested.

Should you have any question or require additional information, do not hesitate to contact me at (813) 965-1561.

Sincerely,



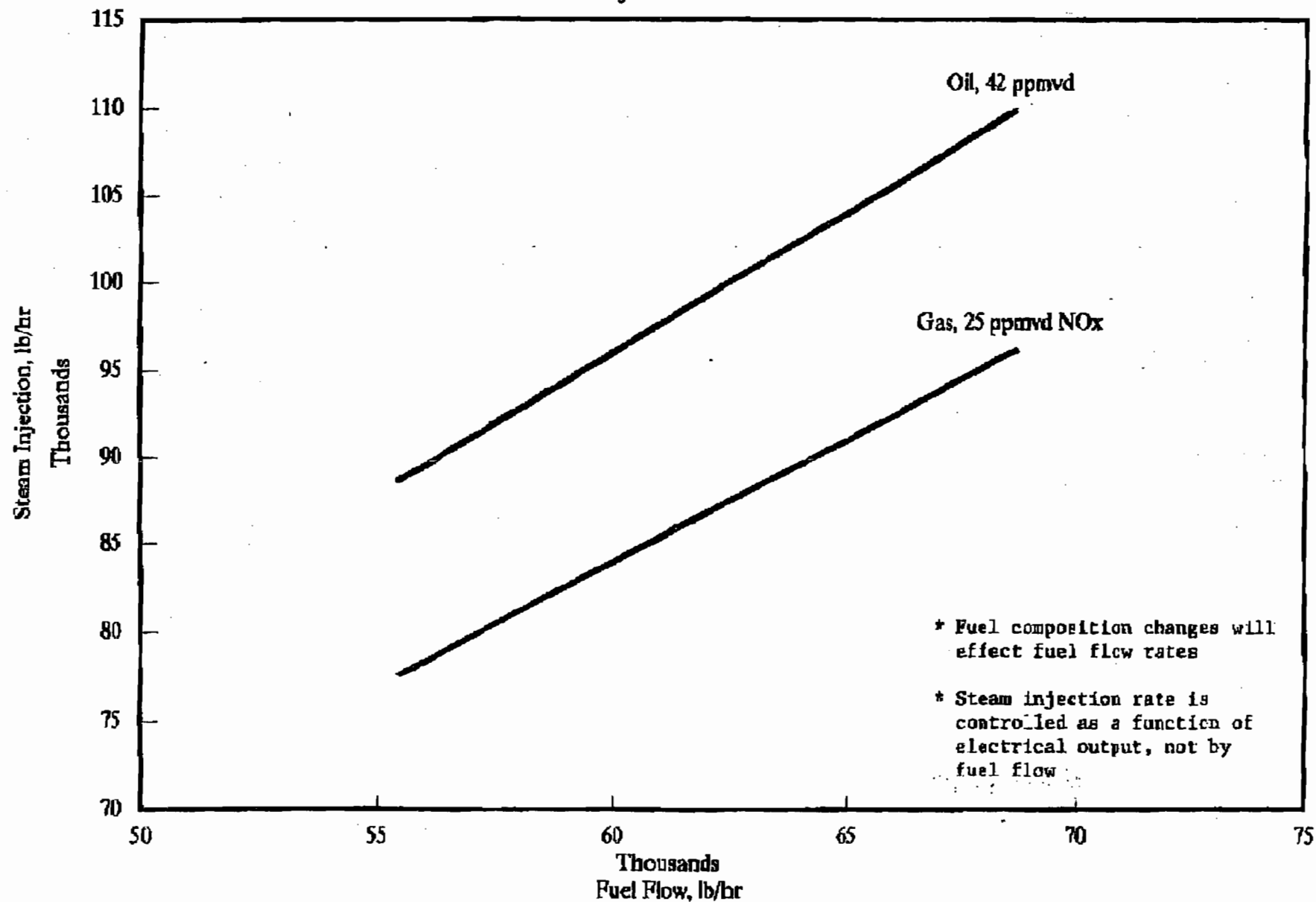
Gene Bergfield  
Plant Technical Supervisor

cc: Don Fields  
Dave Sanches  
Axel Santiago

Enclosure

# Auburndale Project

Steam Injection vs Fuel Flow



TT-652-501DS  
04/21/85

04/25/85  
04/25/95

13:03  
10:58

0407 281 5031  
TT407 281 0000

WESTINGHOUSE PPI  
1117 W. W. W. W.

0003

# AUBURNDALE POWER PARTNERS LIMITED PARTNERSHIP

12500 Fair Lakes Circle • Suite 420  
Fairfax, Virginia 22033-3804  
Phone (703) 222-0445 • Fax (703) 222-5524

1501 Derby Avenue  
Auburndale, Florida 33823  
Phone (813) 965-1561 • Fax (813) 965-1924

April 14, 1995

Mr. Bob Soich, Compliance Engineer  
Florida Department Of Environmental Protection  
Division Of Air Resource Management  
Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619

**RECEIVED**  
APR 18 1995

Department of Environmental Protection  
SOUTHWEST DISTRICT

BY: \_\_\_\_\_

Subject: Permit Number AC 53-208321  
PSD-FL-185

Dear Mr. Soich:

During your site visit to the A.P.P. Auburndale Power Plant yesterday, you requested that I fax to you a copy of the "steam to fuel ratio" curve referenced under Specific Condition 17 of the subject permit.

We have checked our records here at the plant, and although we do not have a copy of the "steam to fuel ratio" curve on file here, I have attached two (2) curves defining the Steam Injection Rate (kpph) versus Gross Power Output (MW) at which NO<sub>x</sub> compliance is achieved. One of the curves reflects operation on natural gas fuel, and the other curve reflects operation on distillate oil fuel. As we discussed during your visit to the plant, the unit has not been fired using distillate oil other than during plant startup and initial compliance testing.

I have requested copies of the "steam to fuel ratio" curve from Westinghouse Electric Corporation in Orlando, who is the overall system design engineer and combustion turbine manufacturer. Unfortunately the responsible project engineer is out of the office for the Easter weekend until this Monday April 17th. I expect to receive the curve next week and will forward it to you for your files.

During your visit you also inquired about the applicability of facility certification under the Acid Rain Program. Phase I certification testing was completed on December 28, 1994 and the Phase I certification application was submitted to the EPA and FDEP on January 31, 1995. Phase II certification testing is scheduled to begin on June 28, and the expected date for submission of the complete application for Acid Rain certification is July 14, 1995.

Should you have any questions or require additional information, please do not hesitate to contact me at (813) 965-1561.

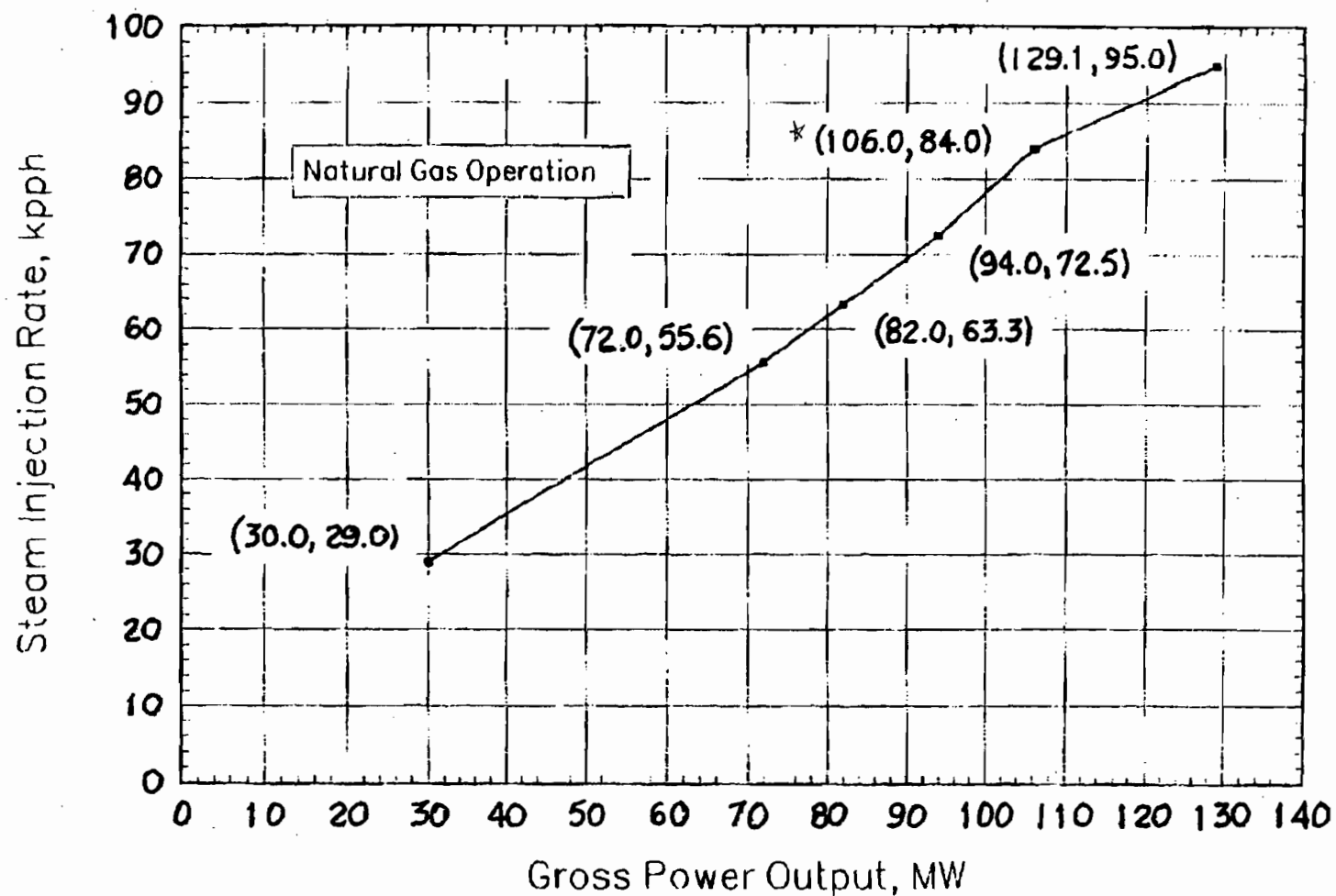
Sincerely,



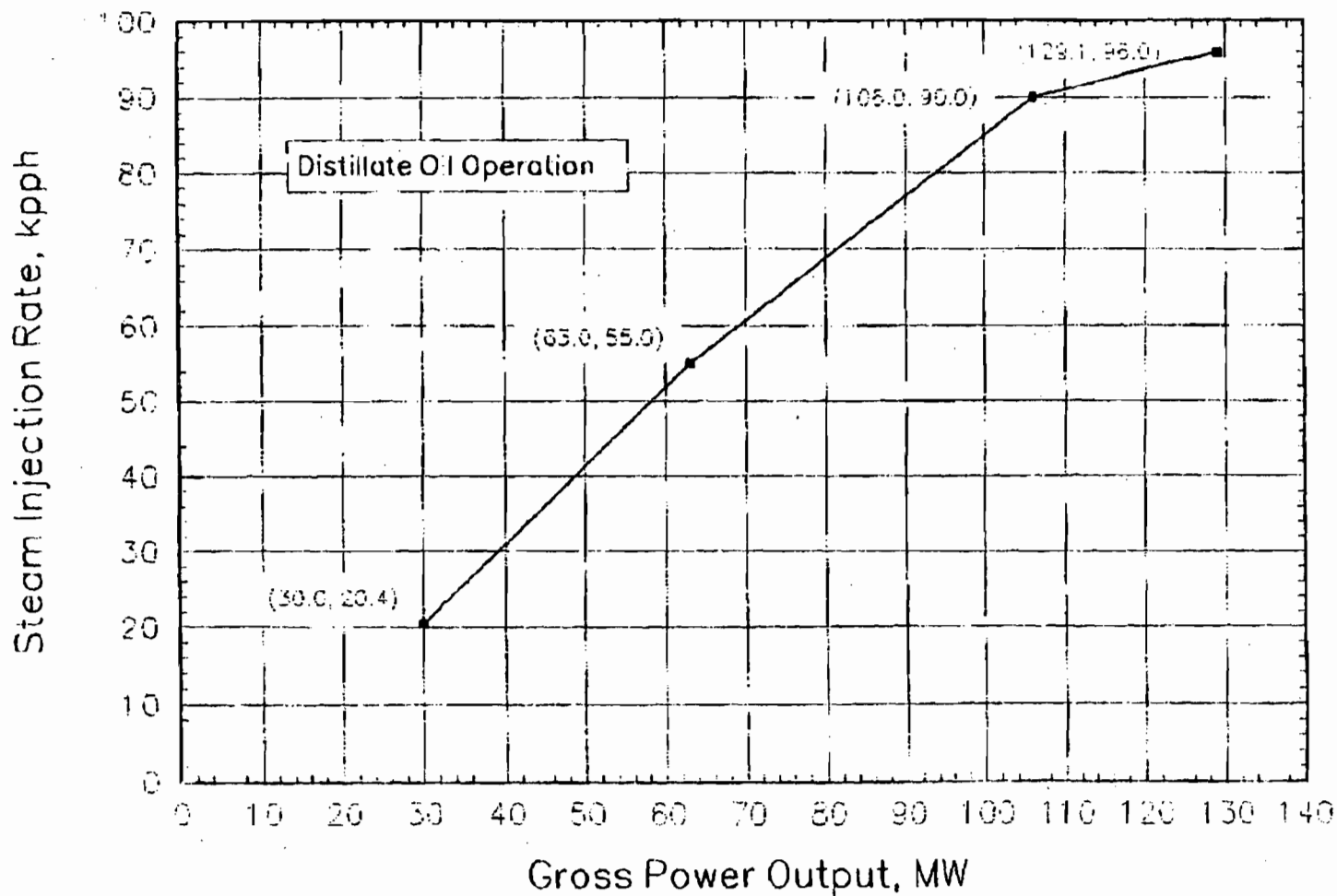
David K. Sanches  
APP Plant Manager

DKS  
Attachments

# W501 D5: Auburndale Project Steam Injection Rate Vs. Gross Power



# W501 D5: Auburndale Project Steam Injection Rate Vs. Gross Power



**AUBURNDALE POWER PARTNERS  
LIMITED PARTNERSHIP**

12500 Fair Lakes Circle • Suite 420  
Fairfax, Virginia 22033-3804  
Phone (703) 222-0445 • Fax (703) 222-5524

1501 Derby Avenue  
Auburndale, Florida 33823  
Phone (813) 967-0300 • Fax (813) 967-8847

July 29, 1994  
APP.441

**RECEIVED**  
AUG 01 1994

Mr. Bill Proses  
Florida Department of <sup>Ecology</sup> Environmental Protection  
Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619

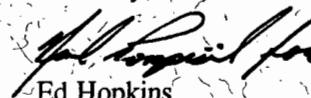
**RE: Auburndale Power Partners Limited Partnership  
156-MW Combined Cycle Combustion Turbine  
AC53-208321; PSD-FL-185**

Dear Mr. Proses:

As required by the above referenced air permit, Auburndale Power Partners, Limited Partnership (APP) is formally submitting its "Particulate and Gaseous Emission Compliance Study" conducted and completed in June, 1994. As shown in the report, APP was successful in all aspects of testing particulate and gaseous emissions, and all fuel analysis for compliance with all air permit limits.

If you have any questions regarding this report, please do not hesitate to call Neal Pospisil or me at (703) 222-0445.

Sincerely,



Ed Hopkins  
Project Manager

cc: Don Fields  
Patricia Haslach  
Neal Pospisil  
Bob Riley  
Dave Sanches  
File: 10-2.3.4

Enclosure



State of Florida  
Department of Environmental Regulation

# District Routing Slip

To: Bill Thomas

Date: 12/21/94

C.C. To:

	<b>Pensacola</b>	<b>Northwest District</b>	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Apalachicola	Northwest District Satellite Office	
X	<b>Tampa</b>	<b>Southwest District</b>	
	Punta Gorda	Southwest District Branch Office	
	Bartow	Southwest District Satellite Office	
	<b>Orlando</b>	<b>Central District</b>	
	Melbourne	Central District Satellite Office	
	<b>Jacksonville</b>	<b>Northeast District</b>	
	Gainesville	Northeast District Branch Office	
	<b>Fort Myers</b>	<b>South District</b>	
	Marathon	South District Branch Office	
	<b>West Palm Beach</b>	<b>Southeast District</b>	
	Port St. Lucie	Southeast District Branch Office	

Reply Optional ☐      Reply Required ☐      Info Only ☐  
Date Due \_\_\_\_\_      Date Due \_\_\_\_\_

Comments:

**RECEIVED**  
DEC 23 1994  
Department of Environmental Protection  
By SOUTHWEST DISTRICT

From:

Mike Stanley

Tel.:

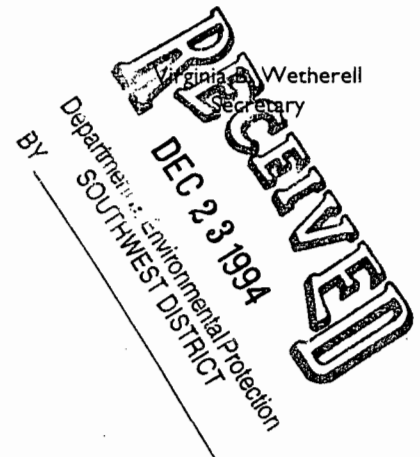


# Department of Environmental Protection

Lawton Chiles  
Governor

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

December 21, 1994



Mr. David McNeal  
Air, Pesticides and Toxics Management Division  
U.S. EPA Region 4  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365

RE: Auburndale Power Partners - Auburndale Cogeneration Facility - Unit 1  
Title IV CEMS Monitoring Plan

Dear Mr. McNeal:

The Emissions Monitoring Section has reviewed Auburndale Power Partners' CEMS Monitoring Plan for the Part 75 certification of their Auburndale Cogeneration Facility (Unit 1). The following comments were noted:

- (1) The use of "N/A" (Not Applicable) in Column 10 of Table A to identify the type of  $\text{NO}_x$  monitoring strategy to be used to measure  $\text{NO}_x$  emission rates is not a valid choice. It appears that the affected unit is not a peaking unit and will be required to install a continuous emission monitoring (CEM) system. If a CEM is to be installed, this should be indicated in Column 10 along with the type of diluent.
- (2) The use of "N/A" (Not Applicable) in Column 11 of Table A to identify the type of  $\text{CO}_2$  monitoring strategy to be used to measure  $\text{CO}_2$  emissions is not a valid choice. It appears that the proper monitoring procedure would involve fuel sampling and analysis/mass balance (FSA) or the expected method for gas fired units (EM).
- (3) The CEM and fuel analysis locations are not represented on the schematic diagram; therefore, it cannot be determined if all the emissions are being monitored.
- (4) The diagrams do not show the upstream and downstream flow disturbances around the  $\text{NO}_x$ /diluent sampling location and the ports that will be used to perform the reference method measurements.
- (5) The inside cross-sectional areas of the flue exhausts were not included.
- (6) The diagrams do not show the specific sampling point for the  $\text{NO}_x$ /diluent sampling probe in the cross-sectional area.

- (7) The NO<sub>x</sub> system (NO<sub>x</sub>, diluent, and DAHS components) were not identified in Table B.
- (8) The serial numbers for the Enertec "Sniffer" DAHS components and the manufacturer, model, and serial number for the oil fuel flowmeter were not included in Table B.
- (9) The maximum potential concentration (MPC), span value, and full-scale range setting were not included for the NO<sub>x</sub> monitor. Since the unit combusts both gas and oil, the calculation of a maximum expected concentration (MEC) and low-scale NO<sub>x</sub> span value may be required.
- (10) The span value for the diluent was not stated.
- (11) The calibration gas ranges to be used for the NO<sub>x</sub> and diluent calibration error tests and linearity checks were not included.
- (12) The Data Flow Diagram did not include the information handling path from the NO<sub>x</sub> and diluent analyzer output signals to the PLC and DAHS components.
- (13) NO<sub>x</sub> formulas were not submitted in Table C.
- (14) CO<sub>2</sub> formulas were not submitted in Table C.
- (15) The formula code for Formula ID #105 stated in column 4 of Table C for the determination of the heat input while combusting oil does not match the formula stated in column 6. The proper formula code should be F-19, rather than F-20.
- (16) The sample acquisition method for the volumetric determination of oil is listed as a turbine fuel flowmeter (TUR) in column 7 of Table B. A turbine fuel flowmeter is not listed as generally acceptable for measuring volumetric oil fuel flow according to Illustration No. D-1 of the Acid Rain CEM Implementation Manual.
- (17) Calibration data was not submitted for the oil fuel flowmeter to indicate that the 2% accuracy requirement was achieved.
- (18) The data submitted for the gas fuel flowmeter calibrations was not sufficient to indicate that the 2% accuracy requirement was achieved. It is not clear which flow rates are measured directly from the flowmeter and which are the reference standards. Furthermore, it is not clear how the percent error was calculated given the line and base rate data.

Mr. David McNeal  
December 21, 1994  
Page Three

- (19) The initial and ongoing calibration methods used to perform calibration accuracy tests for the gas and oil fuel flowmeters were not stated.

If you have any questions, please contact Louis Nichols or Jim Boylan at 904/488-6140, or write to me.

Sincerely,

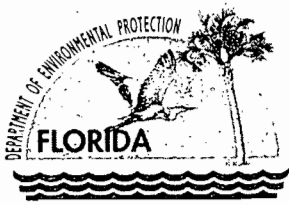
A handwritten signature in cursive script, appearing to read "Michael D. Harley".

Michael D. Harley, P.E., DEE  
P.E. Administrator  
Emissions Monitoring Section

MDH:jb

Enclosure

cc: William Thomas, Southwest District



# Department of Environmental Protection

Lawton Chiles  
Governor

Southwest District  
3804 Coconut Palm Drive  
Tampa, Florida 33619

Virginia B. Wetherell  
Secretary

October 21, 1994

Ms. Patricia A. Haslach, Env. Mng.  
Auburndale power Partners, Limited Partnership  
12500 Fair Lakes Circle, Suite 420  
Fairfax, Virginia 22033

RE: Continuous Monitoring System; Auburndale Power Partners, L.P., AC53-208321 / PSD-FL-185, 156 MW Combined Cycle Combustion Turbine, TECO Model 42H Nitrogen Oxide CEM, S/N 42H-48620-281; Thermo Environmental Model 48 Carbon Monoxide CEM, S/N 48-46001-275; Rosemount Analytical Oxygen CEM, S/N 1000297.

Dear Ms. Haslach:

This letter certifies that the above named monitoring system conforms with EPA performance requirements described in 40 CFR 60, Appendix B, as specified by DEP requirements 17-297.800. Modification to, or replacement of, system components beyond normal maintenance and repair procedures, may render the monitor's acceptable status void.

Sincerely,

Robert Soich, Air Compliance

cc: David Sanches  
Kenneth A. Addison

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DISTRICT ROUTING SLIP

To:

*Bill Thomas*

DATE:

*6/20/94*

CC To:

	<b>PENSACOLA</b>	<b>NORTHWEST DISTRICT</b>	
	Panama City	Northwest District Branch Office	
	Tallahassee	Northwest District Branch Office	
	Sopchoppy	Northwest District Satellite Office	
	<b>TAMPA</b>	<b>SOUTHWEST DISTRICT</b>	
	Punta Gorda	Southwest District Branch Office	
	Bartow	Southwest District Satellite Office	
	<b>ORLANDO</b>	<b>CENTRAL DISTRICT</b>	
	Melbourne	Central District Satellite Office	
	<b>JACKSONVILLE</b>	<b>NORTHEAST DISTRICT</b>	
	Gainesville	Northeast District Branch Office	
	<b>FORT MYERS</b>	<b>SOUTH DISTRICT</b>	
	Marathon	South District Branch Office	
	<b>WEST PALM BEACH</b>	<b>SOUTHEAST DISTRICT</b>	
	Port St. Lucie	Southeast District Branch Office	

☐

Reply Optional  
Date Due \_\_\_\_\_

☐

Reply Required  
Date Due: \_\_\_\_\_

☐

Info Only

Comments:

**RECEIVED**  
JUN 22 1994

Depart.

SOUTHWEST DISTRICT

From:

*Howard Rhodes*

BY

Tel:

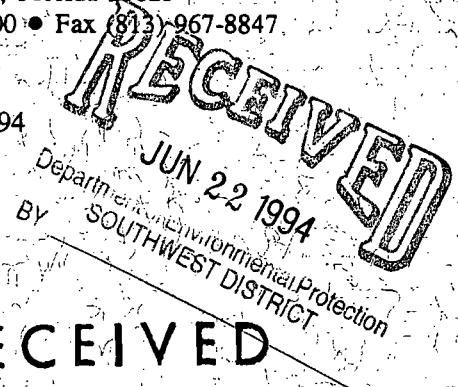
*(904) 488-1344*

**AUBURNDALE POWER PARTNERS  
LIMITED PARTNERSHIP**

12500 Fair Lakes Circle • Suite 300  
Fairfax, Virginia 22033-3804  
Phone (703) 222-0445 • Fax (703) 222-5524

1501 Derby Avenue  
Auburndale, Florida 33823  
Phone (813) 967-0300 • Fax (813) 967-8847

May 19, 1994  
APP.423



Mr. Preston Lewis  
Florida Department of  
Environmental Protection  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

**RE: Auburndale Power Partners Limited Partnership**  
FDEP AC53-208321  
PSD-FL-185

Bureau of  
Air Regulation

Dear Mr. Lewis:

The purpose of this letter is to request revisions to the allowable emission rates for the Auburndale Power Partners cogeneration project. As discussed with Ms. Theresa Heron, a review of the above referenced permit indicated discrepancies between requested and permitted emission rates for three trace metal contaminants. Emission estimates for mercury (Hg), arsenic (As), and lead (Pb) were provided to the Florida Department of Environmental Protection in correspondence dated April 27, 1992, which is attached. A comparison between these requested emission rates and the current permitted rates contained in Table 1 of FDEP permit AC53-208321 is provided as follows:

Pollutant	Fuel	Units	Requested Emissions	Permitted Emissions
Mercury	Gas	lb/hr	0.014	0.001
Arsenic	Oil	ton/yr	0.88	0.05
Lead	Oil	ton/yr	0.57	0.51

The requested emission rates are consistent with the permitted rates specified in terms of pounds per million British thermal units (lb/MMBtu). Auburndale Power Partners would therefore appreciate having FDEP permit AC53-208321 revised to reflect the requested emission rates shown above for Hg, As and Pb.

Mr. Preston Lewis

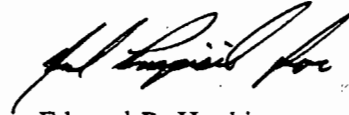
APP.423

Page 2 of 2

With respect to testing procedures, Specific Condition No. 10 of FDEP permit AC53-208321 states that ASTM D4292 can be used to determine the sulfur content of liquid fuels. Inasmuch as NSPS Subpart GG requires the use of ASTM D2880-71 for this analysis, it is requested that method ASTM D2280-71 also be allowed for the analysis of liquid fuel sulfur content. Specific Condition No. 12 requires the monitoring of mercury stack emissions or fuel sampling "using methods acceptable to the Department". As indicated in the Emission Testing Protocol recently approved by FDEP, EPA method 7471, Cold Vapor Atomic Absorption Spectrophotometry, will be used to analyze the mercury content of liquid fuels. Because natural gas has a negligible mercury content, it is requested that Specific Condition 12 be revised to apply only to liquid fuels.

If you have any questions regarding this letter, please do not hesitate to call Neal Pospisil or me at (703) 222-0445.

Sincerely,



Edward P. Hopkins  
Project Manager

EPH/pdk

cc: Don Fields  
Patricia Haslach  
Neal Pospisil  
Bob Riley  
Gene Bergfield (Mission O&M)





Environmental Consulting & Technology, Inc.

April 27, 1992  
91077-0400

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

Re: Auburndale Cogeneration Project  
PSD-FL-185, AC 53-208321

Dear Mr. Fancy:

Receipt is acknowledged of your correspondence dated March 10, 1992, regarding the above referenced project. Responses to the issues raised in your letter are provided as follows:

BACT ANALYSIS

- (1) *Section 4.5.2.2: What is the net energy penalty in millions cu. ft. of natural gas per year for the proposed steam injection and advanced combustor technology? Show the basis of this calculation.*

Net energy penalty associated with steam injection and advanced combustor technology is calculated to be equivalent to the use of 718.89 MM ft<sup>3</sup> per year of natural gas. Details of this calculation are shown on Attachment I.

- (2) *Section 4.5.2.3: What is the cost effectiveness (\$/tons NO<sub>x</sub> removed) of the proposed steam injection and advanced combustor technology?*

Cost effectiveness of steam injection and advanced combustor design is calculated to be \$2,814 per ton of NO<sub>x</sub> removed. Details of this calculation are shown on Attachment II.

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G-ELDOR3/0427JLM.1

- (3) *Section 4.5.2.3: What is the efficiency of this turbine? Calculate Y (refer to the NSPS, Subpart GG).*

The efficiency of the combustion turbine, obtained from vendor data, is 10,020 Btu/kwh (LHV) at 72 °F ambient temperature, base load, and natural gas firing. Using a conversion factor of 1.055056 kilojoule/Btu, the "Y" term in Subpart GG is calculated to be 10.57 kilojoules per watt hour.

- (4) *Section 4.5.2.3: What is the low heating value of the fuel? Calculate NO<sub>x</sub> emissions based on the LHV of the fuel. Attach the basis of this calculation (ppmv, lb/MMBtu, lb/hr, tpy).*

The lower heating values (LHV) of natural gas and distillate oil fuels are 19,920 and 18,200 Btu/lb, respectively. NO<sub>x</sub> emission rate estimates, and the basis for the estimates, using the fuel LHV are shown on Attachment III.

#### GENERAL

- (5) *Submit a flow diagram of the proposed cogeneration system. Include the stacks associated with this system.*

The process flow diagram CCD-HD-1126 for the cogeneration facility is attached separately.

- (6) *Submit a manufacturer's specification manual for the proposed Westinghouse 501D5 combustion turbine, if available.*

Please refer to booklet "Westinghouse W501D Combustion Turbine-Guide to Systems and Applications," attached separately.

- (7) *Heat Recovery Steam Generator (HRSG): Submit manufacturer's name, model number, generator name plate rating (gross MW), maximum steam production rate (lb/hr and/or horsepower).*

The heat recovery steam generator (HRSG) will be a horizontal gas flow type waste heat recovery boiler located adjacent to the combustion turbine. The HRSG will be comprised of a high pressure (HP) and a low pressure (LP) section. Each section will contain an economizer tube bundle, a natural

circulation type evaporator tube bundle with steam drum, and a superheater tube bundle.

HP steam will be supplied directly to the steam turbine inlet and LP steam will be supplied directly to the steam turbine as induction steam. The maximum HP steam production rate will be 368,000 pounds per hour; the maximum LP steam production rate will be 108,700 pounds per hour.

The HRSG will be manufactured by either Nooter/Erickson Cogeneration System, Inc., or Zurn Industries.

- (8) *Steam Turbine Generator: What is the nominal power (MW) output of this steam turbine?*

The nominal output of the steam turbine generator is 52 MW.

- (9) *Steam Turbine Generator: What is the steam input to this turbine?*

The nominal output given in response No. 8 is based on the following steam flows, in pounds per hour:

HP inlet - 363,000  
LP induction - 102,000  
Extraction for NO<sub>x</sub> control - 54,000  
Extraction for process - Zero

Because of thermal cycle requirements, the nominal steam turbine generator rating does not occur at the same operating point as that for the maximum steam production rate from the HRSG.

- (10) *Storage Tanks: What is the estimated annual throughput and type of air pollution control?*

There will be two identical fuel oil storage tanks. Each tank will be of the fixed roof type and will have a capacity of approximately 600,000 gallons.

During the first year of operation (when the facility will operate exclusively on distillate oil), total throughput will be approximately  $1.8 \times 10^6$  barrels, or  $80 \times 10^6$  gallons. After natural gas is available onsite, the facility will operate a maximum of 400 hours per year on distillate oil. The annual throughput

under this circumstance will be approximately 86,000 barrels, or  $3.6 \times 10^6$  gallons.

(11) *Storage Tanks: What are the estimated emissions?*

Estimated emissions of volatile organic compounds (VOCs) are calculated using equations contained in the U.S. Environmental Protection Agency (EPA) publication AP-42, Section 4.3. Total maximum VOC emissions are estimated to be 0.84 tons per year or less. Details of these calculations are provided in Attachment IV.

(12) *Pollutant Information: Show basis of emission rate calculations (lb/hr, TPY, lb/MMBtu) for each of the pollutants considered in this project using the low heating value of the fuel (LHV) and percentage loads.*

Hourly mass emission rates for the criteria pollutants (TSP/PM<sub>10</sub>, NO<sub>x</sub>, CO, and VOC) and H<sub>2</sub>SO<sub>4</sub> were provided by the combustion turbine vendor for operating loads of 100, 80, and 65 percent for several ambient air temperatures. These hourly rates were then converted to units of tons per year based on operating hours for each fuel type and units of lb/MMBtu using the fuel LHV. Mass emission rates for SO<sub>2</sub> were calculated based on the fuels sulfur content and maximum consumption rates. Details of these calculations are shown on Attachment V.

Mass emission rates for non-criteria pollutants (As, Be, F, Pb, and Hg) were calculated using the emission factors shown in Table B-1 of the PSD permit application and maximum heat input rates. Details of these calculations are shown on Attachment VI.

### AIR QUALITY ANALYSIS

(13) *Please evaluate the impact of this project on the Class I Chassahowitzka National Wilderness Area. This evaluation should include an SO<sub>2</sub> and NO<sub>x</sub> PSD Class I increment analysis and an air quality related values analysis (AQRV). The AQRV analysis should at least include the impacts of all PSD significant pollutants that are to be emitted by the project. Additionally, the National Park Service has informed the Department verbally that the AQRV analysis should include not only PSD significant impacts, but also the impacts of all pollutants, including toxics, that are to be emitted by the project. The AQRV analysis includes impacts to visibility, soils, vegetation, and wildlife.*

Letter to C.H. Fancy, P.E.  
April 27, 1992  
Page 5

The additional evaluations of impacts on the Chassahowitzka Class I area are currently being completed. This analysis will be provided for review as soon as possible.

We look forward to your review of this information, and we are available to answer any further questions that may arise.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.



Thomas W. Davis, P.E.  
Senior Engineer

TWD/tsw

Enclosures

cc: P. Haslach, Mission Energy

**Kuburndale Cogeneration Project**  
**Attachment I**  
**Net Energy Penalty Associated with**  
**Steam Injection and Advanced Combustion**

Energy penalties associated with steam injection and use of advanced combustion are due to: (1) heat value of the injected steam and (2) reduction in turbine efficiency. An energy credit results from the increase in power due to higher mass flow through the turbine. Specific energy calculations for each of these items follows:

**1. Steam Injection Penalty**

Energy value of steam = 1,195 Btu/lb  
Steam Injection Rate = 79,950 lb/hr  
(At 72°F, base load, natural gas fuel)

Penalty = (1,195 Btu/lb) \* (79,950 lb/hr) \* (8,760 hr/yr)  
Penalty = 836,933 MMBtu/hr

Note: This represents a revision to the value originally provided since fuel flow, instead of steam flow, was inadvertently used in the original calculation.

**2. Reduction in Turbine Efficiency Penalty**

Heat Rate Increase = 125 Btu/kwh (per turbine vendor)  
Power Output = 113,550 kw  
(At 72°F, base load, natural gas fuel)

Penalty = (125 Btu/kwh) \* (113,550 kw) \* (8,760 hr/yr)  
Penalty = 124,337 MMBtu/hr

**3. Power Increase Credit**

Power Increase = 60,500,000 kwh/yr (per turbine vendor)

Credit = (60,500,000 kwh/yr) \* (0.003412141 MMBtu/kwh)  
Credit = 206,435 MMBtu/yr

**4. Net Energy Penalty (MMBtu/yr)**

Net Penalty = 836,933 MMBtu/yr + 124,337 MMBtu/yr  
                  - 206,435 MMBtu/yr  
Net Penalty = 754,835 MMBtu/yr

**5. Net Energy Penalty Natural Gas Equivalent (MMft<sup>3</sup>/yr)**

Heat Content of Natural Gas = 1,050 Btu/ft<sup>3</sup>

Net Penalty = (754,835 MMBtu/yr) + (1,050 Btu/ft<sup>3</sup>)

Net Penalty = 718.89 MM ft <sup>3</sup> /yr
---

# ATTACHMENT II

## Capital Costs for Steam Injection/Advanced Combustor

Direct Costs	(\$)	OAQPS Factor
Purchased Equipment	(114,500)	A
Installation		
Foundations & Supports	(9,160)	0.08 * A
Handling & Erection	(16,030)	0.14 * A
Electrical	(4,580)	0.04 * A
Piping	(2,290)	0.02 * A
Insulation For Ductwork	(1,145)	0.01 * A
Painting	(1,145)	0.01 * A
Total Installation Cost	(34,350)	
Site Preparation	(4,000)	
Total Direct Cost	(152,850)	TDC
Indirect Costs	(\$)	OAQPS Factor
Engineering	(11,450)	0.10 * A
Construction & Field Expenses	(5,725)	0.05 * A
Contractor Fees	(11,450)	0.10 * A
Start-up	(2,290)	0.02 * A
Performance Test	(1,145)	0.01 * A
Contingency	0	0.25 * A
Total Indirect Cost	(32,060)	TIC
Interest During Construction	(18,491)	
Total Capital Investment	(203,401)	TCI

## ATTACHMENT II

### Annual Operating Costs for Steam Injection/Advanced Combustor

1st Year 100% Oil

2nd Year 50.0% Gas, 50.0% Oil

3rd - 15th Year 95.4% Gas, 4.6% Oil

Direct Costs	(\$)	OAQPS Factor
<b>Labor &amp; Material Costs</b>		
Operator	0	A
Supervisor	0	$0.15 * A$
<b>Maintenance</b>		
Labor	0	B
Materials	0	$1.00 * B$
<b>Total Labor &amp; Material Costs</b>	0	C
<b>Utilities</b>		
Electricity	(2,100)	
Natural Gas	0	
Water	(20,000)	
<b>Total Utilities</b>	(22,100)	
<b>Energy Penalties</b>		
Turbine Efficiency Reduction	(22,381)	
Power Increase	945,000	
Steam Injection	49,085	
<b>Total Energy Penalties</b>	994,085	
<b>Total Direct Cost</b>	971,985	TDC
Contingency	0	$.25 * TDC$
<b>Indirect Costs</b>	(\$)	OAQPS Factor
Overhead	0	$0.60 * C$
Administrative Charges	(4,068)	$0.02 * TCI$
Property Taxes	(2,034)	$0.01 * TCI$
Insurance	(2,034)	$0.01 * TCI$
Capital Recovery	(32,291)	
<b>Total Indirect Cost</b>	(40,427)	
<b>Total Annual Cost</b>	931,558	



Summary of NO<sub>x</sub> BACT Analysis

Control Option	<u>Emission Impacts</u>			<u>Economic Impacts</u>			<u>Energy Impacts</u>	<u>Environmental Impacts</u>	
	<u>Emission Rates</u> (lb/hr)		Emission Reduction (tpy)	Installed Capital Cost (\$)	Total Annualized Cost (\$/yr)	Cost Effectiveness Over Baseline (\$/ton)	Increase Over Baseline (MMBtu/yr)	Toxic Impact (Y/N)	Adverse Envir. Impact (Y/N)
Advanced Combustor & Steam Injection	116.2	508.8	331.0	(203,401)	931,558	2,814	754,835	N	N
Baseline	191.7	839.8	N/A	N/A	N/A	N/A	N/A	N	N

Notes: (1) Emission rates represent composite of gas and oil-firing at 72°F ambient temperature.  
 (2) Baseline is standard combustor with steam injection.

Source: ECT, 1992.  
 Westinghouse, 1992.

# Waburndale Cogeneration Project

## Attachment III NO<sub>x</sub> Emission Rates

NO<sub>x</sub> emission rate estimates based on fuel LHV are provided as follows:

### Basis:

Parameter	Units	Fuel Type	
		Distillate Oil	Natural Gas
Exhaust concentration	ppmvd @ 15% O <sub>2</sub>	43	26
Exhaust Flow Rate	lb/hr	3,173,110	3,150,540
Exhaust Water Content	Vol. %	9.92	10.98
Exhaust Molecular Weight	lb/lb-mole	28.35	28.06
Exhaust oxygen content	Vol. %, dry	14.28	14.51

Note: Combustion turbine exhaust flow rates, temperatures, water contents, molecular weights, and oxygen contents from vendor data at base load and 29 °F (oil) and 31 °F (gas) ambient temperatures.

NO<sub>x</sub> exhaust concentrations indicated in the PSD application (42 and 25 ppmvd for oil and gas, respectively) are at 15% O<sub>2</sub> and ISO conditions and include humidity and combustor pressure corrections per Subpart GG of the NSPS.

### Calculations:

#### 1. Exhaust volumetric flow rate at ISO Conditions

At 59 °F, one lb-mole of gas occupies 378.54 ft<sup>3</sup>. Using the Ideal Gas Law (PV = nRT), combustion turbine volumetric exhaust flow rates are calculated for each fuel as follows:

#### Distillate Oil

$$\text{Flow Rate} = \frac{(3,173,110 \text{ lb/hr}) * (378.54 \text{ ft}^3/\text{lb-mole})}{(28.35 \text{ lb/lb-mole})}$$

$$\text{Flow Rate} = 42.369 \text{ MM ft}^3/\text{hr @ 59 °F, wet}$$

$$\text{Flow Rate} = (42.369 \text{ MM ft}^3/\text{hr}) * (1 - 0.0992) * [(20.9 - 14.28)/5.9]$$

$$\text{Flow Rate} = 42.823 \text{ MM ft}^3/\text{hr @ 59 °F, dry, 15\% O}_2$$

Attachment III  
NO<sub>x</sub> Emission Rates  
(continued)

Calculations:

1. Exhaust volumetric flow rate at ISO Conditions

Natural Gas

$$\text{Flow Rate} = \frac{(3,150,540 \text{ lb/hr}) * (378.54 \text{ ft}^3/\text{lb-mole})}{(28.06 \text{ lb/lb-mole})}$$

$$\text{Flow Rate} = 42.502 \text{ MM ft}^3/\text{hr} @ 59 \text{ }^\circ\text{F, wet}$$

$$\text{Flow Rate} = (42.502 \text{ MM ft}^3/\text{hr}) * (1 - 0.1098) * [(20.9 - 14.51)/5.9]$$

$$\text{Flow Rate} = 40.978 \text{ MM ft}^3/\text{hr} @ 59 \text{ }^\circ\text{F, dry, 15\% O}_2$$

2. NO<sub>x</sub> Emission Rate; lb/hr

Distillate Oil

$$\text{NO}_x = \frac{(42.823 \text{ MM ft}^3/\text{hr}) * (43 \text{ ft}^3 \text{ NO}_x/\text{MM ft}_3) * (46 \text{ lb NO}_x/\text{lb-mole})}{(378.54 \text{ ft}^3 \text{ NO}_x/\text{lb-mole})}$$

$$\text{NO}_x = 224 \text{ lb/hr}$$

NO <sub>x</sub> = 230 lb/hr
-----------------------------

(with margin for testing variability)

Natural Gas

$$\text{NO}_x = \frac{(40.978 \text{ MM ft}^3/\text{hr}) * (26 \text{ ft}^3 \text{ NO}_x/\text{MM ft}_3) * (46 \text{ lb NO}_x/\text{lb-mole})}{(378.54 \text{ ft}^3 \text{ NO}_x/\text{lb-mole})}$$

$$\text{NO}_x = 129 \text{ lb/hr}$$

NO <sub>x</sub> = 131 lb/hr
-----------------------------

(with margin for testing variability)

Attachment III  
NO<sub>x</sub> Emission Rates  
(continued)

3. NO<sub>x</sub> Emission Rate; lb/MMBtu (LHV)

Distillate Oil

Heat Input (LHV) = 1,252 MMBtu/hr  
(Per vendor data at 29°F, base load)

$$\text{NO}_x = (230 \text{ lb/hr}) + (1,252 \text{ MMBtu/hr})$$

$$\text{NO}_x = 0.184 \text{ lb/MMBtu}$$

Natural Gas

Heat Input (LHV) = 1,253 MMBtu/hr  
(Per vendor data at 31°F, base load)

$$\text{NO}_x = (131 \text{ lb/hr}) + (1,253 \text{ MMBtu/hr})$$

$$\text{NO}_x = 0.105 \text{ lb/MMBtu}$$

4. NO<sub>x</sub> Emission Rate; ton/yr

Distillate Oil

$$\text{NO}_x = (230 \text{ lb/hr}) * (8,760 \text{ hr/yr}) * (.0005 \text{ ton/lb})$$

$$\text{NO}_x = 1,007 \text{ ton/yr}$$

Natural Gas/Distillate Oil

Operating Time on Natural Gas = 8,360 hr/yr  
Operating Time on Distillate Oil = 400 hr/yr  
(Following initial 18 month operation on distillate oil)

$$\text{NO}_x = [(230 \text{ lb/hr} * 400 \text{ hr/yr}) + (131 \text{ lb/hr} * 8,360 \text{ hr/y})] * (.0005 \text{ ton/lb})]$$

$$\text{NO}_x = 594 \text{ ton/yr}$$

# Aburndale Cogeneration Project

## Attachment IV Storage Tank Emissions Calculations

- Breathing losses from fixed roof tanks are calculated as follows:

$$L_B = 2.26 \times 10^{-2} M_v \left( \frac{P}{P_A - P} \right)^{0.68} D^{1.73} H^{0.51} \Delta T^{0.50} F_P C K_C$$

Where:

$L_B$  = fixed roof breathing loss (lb/yr).

$M_v$  = molecular weight of vapor in storage tank (lb/lb mole) = 130.

$P_A$  = average atmospheric pressure at tank location (psia) = 14.76.

$P$  = true vapor pressure at bulk liquid conditions (psia) = 0.012 at 80°F.

$D$  = tank diameter (ft) = 45.

$H$  = average vapor space height, including roof volume correction (ft) = 25.

$\Delta T$  = average ambient diurnal temperature change (°F) = 16.5.

$F_P$  = paint factor (dimensionless) = 1.33 (light gray tank color).

$C$  = adjustment factor for small diameter tanks (dimensionless) = 1.0.

$K_C$  = product factor (dimensionless) = 1.0.

Therefore:

$$L_B = 2.26 * 10^{-2} * 130 * [0.012 / (14.76 - 0.012)]^{0.68} * 45^{1.73} * 25^{0.51} * 16.5^{0.50} * 1.33 * 1.0 * 1.0 = 471 \text{ lb/yr}$$

$L_B = 0.24 \text{ tons/yr}$

- Working losses from fixed roof tanks are calculated as follows:

$$L_W = 2.40 * 10^{-5} M_v P V N K_N K_C$$

Where:

$L_W$  = fixed roof working loss (lb/yr).

$M_v$  = molecular weight of vapor in storage tank (lb/lb mole) = 130.

$P$  = true vapor pressure at bulk liquid temperature (psai) = 0.012 at 80°F.

$V$  = tank capacity (gal) = 600,000.

$N$  = number of turnovers per year (dimensionless)

$$N = \frac{\text{Total throughput per year (gal)}}{\text{Tank capacity, V (gal)}} = 133 \text{ (max)}$$

$K_N$  = turnover factor (dimensionless) = 0.4.

$K_C$  = product factor (dimensionless) = 1.0.

Aburndale Cogeneration Project

Attachment IV  
Storage Tank Emissions Calculations  
(continued)

Therefore:

$$L_w = 2.40 * 10^{-5} * 130 * 0.012 * 600,000 * 133 * 0.4 * 1.0 = 1,195 \text{ lb/yr.}$$

$$L_w = 0.60 \text{ tons/yr}$$

Thus, maximum total VOC emissions would be:

$$\begin{aligned} \text{Total VOC} &= L_B + L_w \\ &= 0.24 + 0.60 \\ &= 0.84 \text{ ton/yr} \end{aligned}$$

$$\text{Total VOC} = 0.84 \text{ tons/yr}$$

VOC emissions would be much less when the use of oil decreases to 400 hours per year.

**Auburndale Cogeneration Project  
Attachment V  
Criteria Pollutant Emission Rates**

<b>A. Natural Gas</b>														
Unit Load (%)	Ambient Temperature (oF)	Heat Input (LHV) (MMBtu/hr)	PM10/TSP			NOx			CO			VOC		
			(lb/hr)	(ton/yr)	(lb/MMBtu)	(lb/hr)	(ton/yr)	(lb/MMBtu)	(lb/hr)	(ton/yr)	(lb/MMBtu)	(lb/hr)	(ton/yr)	(lb/MMBtu)
100	31	1,253	10.5	46.0	0.0084	131.0	573.8	0.1045	43.5	190.5	0.0347	6.0	26.3	0.0048
80	31	1,049	8.6	37.7	0.0082	109.0	477.4	0.1039	34.5	151.1	0.0329	4.0	17.5	0.0038
65	31	912	8.6	37.7	0.0094	109.0	477.4	0.1195	34.5	151.1	0.0378	4.0	17.5	0.0044
<b>B. Distillate Fuel Oil</b>														
Unit Load (%)	Ambient Temperature (oF)	Heat Input (LHV) (MMBtu/hr)	PM10/TSP			NOx			CO			VOC		
			(lb/hr)	(ton/yr)	(lb/MMBtu)	(lb/hr)	(ton/yr)	(lb/MMBtu)	(lb/hr)	(ton/yr)	(lb/MMBtu)	(lb/hr)	(ton/yr)	(lb/MMBtu)
100	29	1,252	63.5	278.1	0.0507	230.0	1,007.4	0.1837	73.0	319.7	0.0583	10.0	43.8	0.0080
80	29	1,049	52.6	230.4	0.0501	192.0	841.0	0.1830	58.0	254.0	0.0553	8.0	35.0	0.0076
65	29	915	46.0	201.5	0.0504	168.0	735.8	0.1842	51.0	223.4	0.0559	7.0	30.7	0.0077

**Auburndale Cogeneration Project  
Attachment V  
Criteria Pollutant Emission Rates**

C. Sulfur Compounds - Natural Gas											
Unit Load (%)	Ambient Temperature (oF)	Heat Input (LHV) (MMBtu/hr)	Sulfur Content (gr/scf)	Sulfur Content (Wt %)	Fuel Flow Rate (lb/hr)	SO2			H2SO4		
						(lb/hr)	(ton/yr)	(lb/MMBtu)	(lb/hr)	(ton/yr)	(lb/MMBtu)
100	31	1,253	10.0	0.0318	62,900	40.0	175.3	0.0319	5.1	22.3	0.0041
80	31	1,049	10.0	0.0318	52,650	33.5	146.7	0.0319	4.3	18.8	0.0041
65	31	912	10.0	0.0318	45,800	29.1	127.6	0.0319	3.7	16.2	0.0041
D. Sulfur Compounds - Distillate Oil											
Unit Load (%)	Ambient Temperature (oF)	Heat Input (LHV) (MMBtu/hr)	Sulfur Content (Wt %)	Fuel Flow Rate (lb/hr)	SO2			H2SO4			
					(lb/hr)	(ton/yr)	(lb/MMBtu)	(lb/hr)	(ton/yr)	(lb/MMBtu)	
100	29	1,252	0.20	68,770	275.1	1204.9	0.2197	35.6	155.9	0.0284	
80	29	1,049	0.20	57,650	230.6	1010.0	0.2198	29.8	130.5	0.0284	
65	29	915	0.20	50,290	201.2	881.1	0.2198	26.0	113.9	0.0284	

Note: Annual rates (ton/yr) based on 8,760 hrs/yr operation.



**Auburndale Cogeneration Project  
Attachment VI  
Non-Criteria Pollutant Emission Rates**

**A. Natural Gas**

Turbine Conditions			Hg			
Unit Load (%)	Ambient Temperature (oF)	Heat Input (LHV) (MMBtu/hr)	Emission Factor (lb/TBtu)	Emission Rates		
				(lb/hr)	(ton/yr)	(lb/MMBtu)
100	31	1,253	11.3	0.014	0.062	0.000011
80	31	1,049	11.3	0.012	0.052	0.000011
65	31	912	11.3	0.010	0.045	0.000011

**B. Distillate Fuel Oil**

Turbine Conditions			Hg				As				Be			
Unit Load (%)	Ambient Temperature (oF)	Heat Input (LHV) (MMBtu/hr)	Emission Factor (lb/TBtu)	Emission Rates			Emission Factor (lb/TBtu)	Emission Rates			Emission Factor (lb/TBtu)	Emission Rates		
				(lb/hr)	(ton/yr)	(lb/MMBtu)		(lb/hr)	(ton/yr)	(lb/MMBtu)		(lb/hr)	(ton/yr)	(lb/MMBtu)
100	29	1,252	3.0	0.004	0.016	0.000003	161.0	0.202	0.883	0.000161	2.5	0.003	0.014	0.000002
80	29	1,049	3.0	0.003	0.014	0.000003	161.0	0.169	0.740	0.000161	2.5	0.003	0.011	0.000002
65	29	915	3.0	0.003	0.012	0.000003	161.0	0.147	0.645	0.000161	2.5	0.002	0.010	0.000003

**Auburndale Cogeneration Project  
Attachment VI  
Non-Criteria Pollutant Emission Rates**

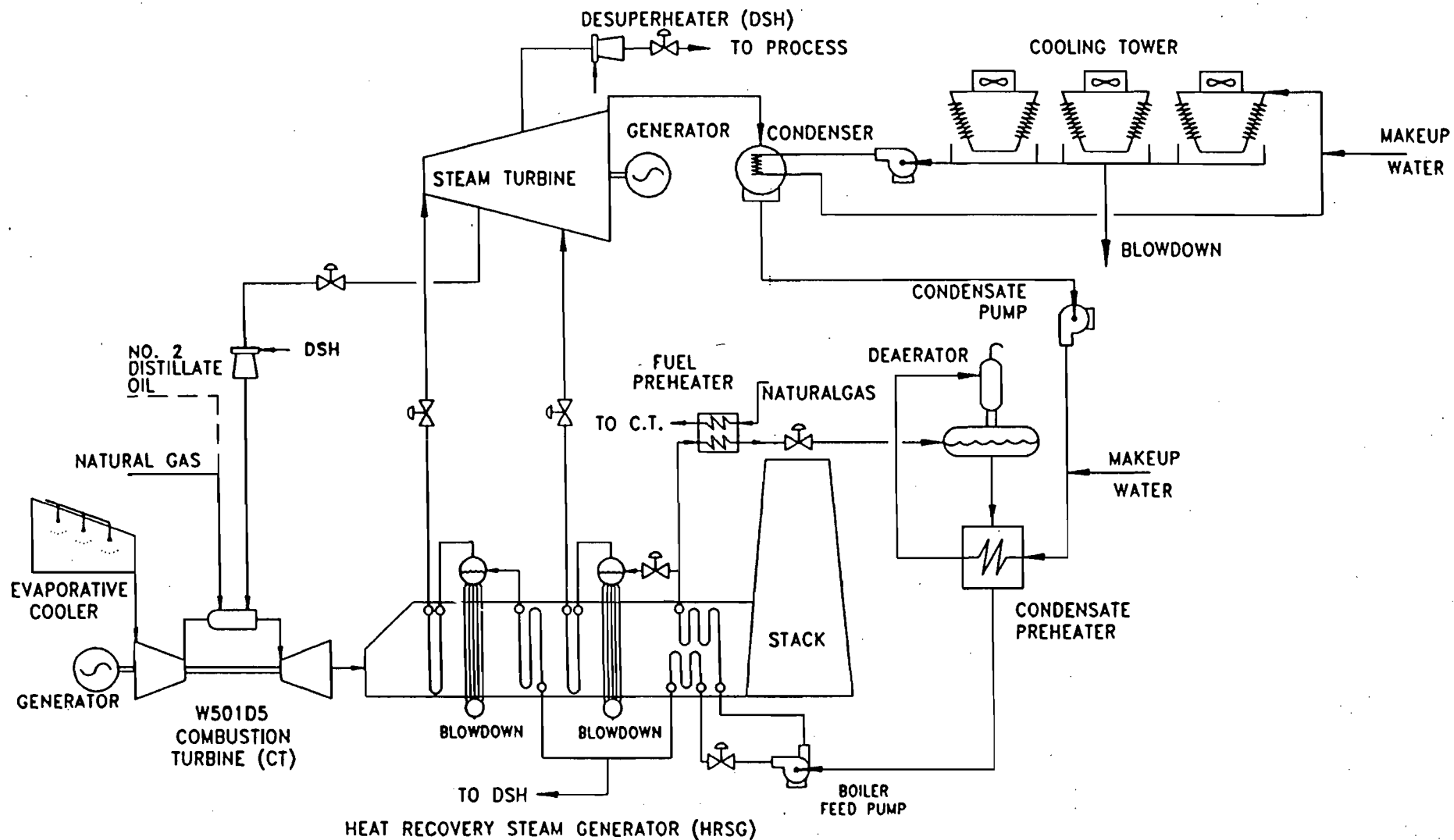
B. Distillate Fuel Oil (cont.)										
Turbine Conditions			F				Pb			
Unit Load (%)	Ambient Temperature (oF)	Heat Input (LHV) (MMBtu/hr)	Emission Factor (lb/TBtu)	Emission Rates			Emission Factor (lb/TBtu)	Emission Rates		
				(lb/hr)	(ton/yr)	(lb/MMBtu)		(lb/hr)	(ton/yr)	(lb/MMBtu)
100	29	1,252	32.5	0.041	0.178	0.000033	104.0	0.130	0.570	0.000104
80	29	1,049	32.5	0.034	0.149	0.000033	104.0	0.109	0.478	0.000104
65	29	915	32.5	0.030	0.130	0.000033	104.0	0.095	0.417	0.000104

Note: TBtu = teraBtu; 1.0E12 Btu

# AUBURNDALE POWER PARTNERS

## COGENERATION POWER FACILITY

### PROCESS FLOW DIAGRAM



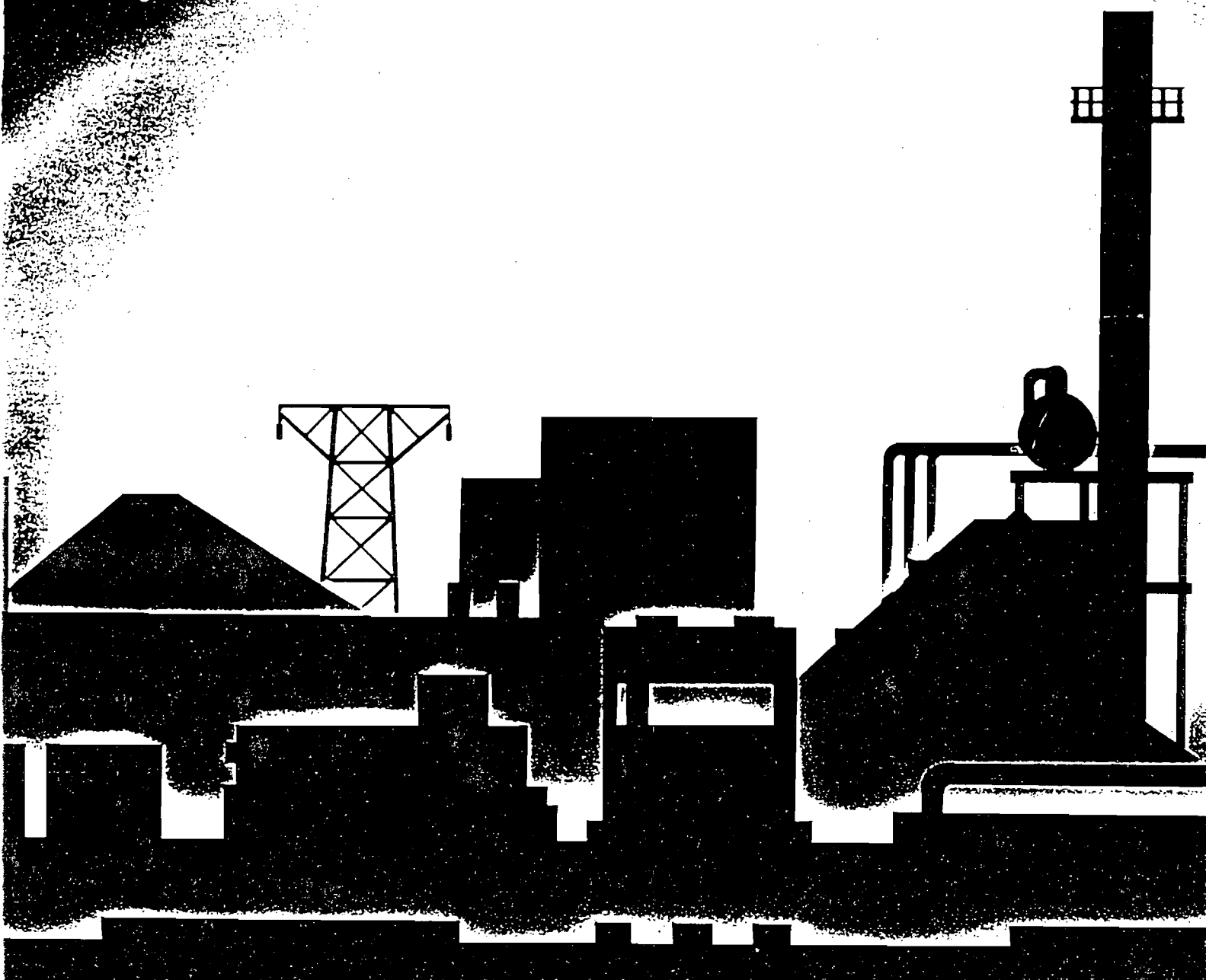
THIS DRAWING CONTAINS INFORMATION PROPRIETARY TO WESTINGHOUSE ELECTRIC CORPORATION. IT IS SUBMITTED IN CONFIDENCE AND IS TO BE USED SOLELY FOR THE PURPOSE FOR WHICH IT IS FURNISHED AND RETURNED UPON REQUEST. THIS DRAWING AND SUCH INFORMATION IS NOT TO BE REPRODUCED, TRANSMITTED, DISCLOSED, OR USED OTHERWISE, IN WHOLE OR IN PART, WITHOUT THE WRITTEN AUTHORIZATION OF WESTINGHOUSE ELECTRIC CORPORATION.

	<b>WESTINGHOUSE ELECTRIC CORP.</b>		REV. 0
	POWER GENERATION PROJECTS DIVISION - ORLANDO, FL		
	CCD DOCUMENT NO. - CCD-HB-1126	LEVEL: 1	
	PREPARED BY: M. Knecht	DATE: 4/2/92	
APPROVED BY: E. H. [Signature]	DATE: 4/2/92		



# Westinghouse W501D Combustion Turbine

Guide to  
System



*Joey*  
**AUBURNDALE POWER PARTNERS**  
**LIMITED PARTNERSHIP** *Patty*  
*qui*

12500 Fair Lakes Circle • Suite 300  
Fairfax, Virginia 22033  
Phone (703) 222-0445 • Fax (703) 222-5524

1501 Derby Avenue  
Auburndale, Florida 33823  
Phone (813) 967-0300 • Fax (813) 967-8847

Mr. Preston Lewis  
Supervisor of Air Permitting  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

RECEIVED  
January 26, 1994  
APP 320  
FEB 03 1994  
Bureau of  
Air Regulation  
Department of  
Environmental Protection  
BY SOUTHWEST DISTRICT

**RE: Auburndale Power Partners, Limited Partnership Anticipated Start-Up Date**

Dear Mr. Lewis:

To comply with Auburndale Power Partners, Limited Partnerships (APP) Prevention of Significant Deterioration Air Permit (Permit Number: AC53-208321, PSD-FL-185), APP is formally providing written notification of its anticipated start-up date. Currently, APP is scheduled to initially fire the Combustion Turbine on March 11, 1994.

If you have any questions regarding the anticipated start-up schedule, please do not hesitate to call Neal Pospisil or me at (703) 222-0445.

Sincerely,

*Ed Hopkins*

Ed Hopkins  
Project Manager

cc: Don Fields  
Patricia Haslach  
Bob Riley  
Jim Lynn  
Neal Pospisil  
Dave Sanches (Mission O&M)  
Bob Birtker

Chief, Air Enforcement Branch  
U.S. Environmental Protection Agency, Region IV  
345 Courtland Street N.E.  
Atlanta, GA 30365

*G. Harper, EPA Atlanta*  
File: 10-2.3  
*B. Thomas, SW Dist*



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

OCT 28 1992

4APT-AEB

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

RE: Auburndale Power Partners,  
Auburndale Cogeneration Project (PSD-FL-185)

Dear Mr. Fancy:

This is to acknowledge receipt of your revised preliminary determination and draft Prevention of Significant Deterioration (PSD) permit for the above referenced facility, dated October 1, 1992. The proposed facility will produce approximately 156 megawatts (MW) of electricity and will also provide steam to several nearby manufacturing plants. The proposed combined cycle system will consist of one 104 MW Westinghouse 501D5 combustion turbine, one 52 MW steam turbine generator, and one unfired heat recovery steam generator.

Your determination proposes to limit NO<sub>x</sub> emissions through steam injection and advanced burner technology, to limit SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> Mist emissions through limiting the sulfur content of the No. 2 distillate fuel oil, to limit CO and VOC emissions through good combustion techniques, to limit PM/PM<sub>10</sub> emissions by combustion controls and the use of clean fuels, and to limit Pb, Be, and As emissions through the use of clean fuels. In addition, this facility will meet revised, lower NO<sub>x</sub> limits no later than September 30, 1997, through advanced combustor design or the use of selective catalytic reduction.

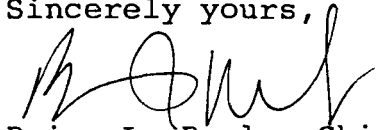
RECEIVED

NOV 02 1992

Division of Air  
Resources Management

We have reviewed the package as submitted and have no adverse comments. Thank you for the opportunity to review and comment on this package. If you have any questions or comments, please contact Mr. Scott Davis of my staff at (404) 347-5014.

Sincerely yours,



Brian L. Beals, Chief  
Source Evaluation Unit  
Air Enforcement Branch  
Air, Pesticides, and Toxics  
Management Division

cc: J. Heron  
C. Halladay  
B. Thomas, SW Dist  
J. Davis, ECT  
B. Mitchell, NPS



# United States Department of the Interior

FISH AND WILDLIFE SERVICE

75 SPRING STREET, S.W.

ATLANTA, GEORGIA

30303

November 5, 1992



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

RECEIVED

NOV 10 1992

Division of Air  
Resources Management

Dear Mr. Fancy:

We have completed our review of the material you sent us regarding the Auburndale Power Partner's (Auburndale) proposal to construct a cogeneration power production facility in Polk County, Florida. The Auburndale site is located approximately 105 km southeast of the Chassahowitzka Wilderness Area (WA), a Class I air quality area administered by the Fish and Wildlife Service. The proposed facility would be a significant emitter of nitrogen oxides ( $\text{NO}_x$ ), sulfur dioxide ( $\text{SO}_2$ ), particulate matter (PM), carbon monoxide (CO), volatile organic compounds (VOC), beryllium (Be), and sulfuric acid mist ( $\text{H}_2\text{SO}_4$ ). Our detailed comments follow, but as you know, we are particularly concerned about the potential for new emission sources to cause or contribute to  $\text{SO}_2$  increment exceedances at the wilderness area.

## Control Technology Review

Auburndale proposes to minimize emissions from the turbine by using proper combustion controls, burning low sulfur fuel (initially oil with a maximum sulfur content of 0.05 percent, and then gas when it becomes available), and use of water injection and advanced burner design. As we indicated in our June 26, 1992, comments on the completeness of the Auburndale application, we agree that proper combustion controls and burning a low sulfur fuel are best available control technology (BACT) for PM, Be, CO, VOC,  $\text{SO}_2$ , and  $\text{H}_2\text{SO}_4$ . Again, we are pleased that Auburndale has agreed to lower the maximum sulfur content of the fuel from the originally proposed 0.20 percent to 0.05 percent. This change will result in a significant reduction in  $\text{SO}_2$  and  $\text{H}_2\text{SO}_4$  emissions when Auburndale fires the turbine with oil. For  $\text{NO}_x$ , we still believe that either water injection in combination with Selective Catalytic Reduction (SCR), or dry low- $\text{NO}_x$  combustors represent BACT for new combined cycle combustion turbine projects. Dry low- $\text{NO}_x$  combustors can reduce  $\text{NO}_x$  levels to less than 15 parts per



million (ppm) when firing natural gas, while SCR can achieve flue gas NO<sub>x</sub> concentrations as low as 6 ppm when burning gas and 9 ppm when burning oil. However, we do not object to you allowing Auburndale to emit at the proposed 25 ppm NO<sub>x</sub> rate while Westinghouse develops dry low-NO<sub>x</sub> combustors for the proposed turbine, provided Auburndale does indeed install SCR technology, as they proposed, if they can not meet the 15 ppm rate by September 30, 1997.

### Air Quality Analysis

In addressing the Class I SO<sub>2</sub> and NO<sub>2</sub> increments, Auburndale first modeled its impact at the Chassahowitzka WA with the EPA ISCST model, using 5 years of meteorological data (1982-1986). For the 24-hour averaging period, the ISCST modeling indicates that the Auburndale facility would significantly consume SO<sub>2</sub> increment, (i.e. having an impact greater than 0.07 ug/m<sup>3</sup>) at the Chassahowitzka WA in 2 of the 5 years, with a maximum concentration of 0.087 ug/m<sup>3</sup>. The Auburndale facility is predicted not to significantly consume SO<sub>2</sub> increment during the 3-hour or annual averaging periods. The modeling also shows that the proposed source would not significantly consume NO<sub>2</sub> increment during the annual averaging period.

For the days that the Auburndale facility exceeded the 0.07 ug/m<sup>3</sup> 24-hour significant level, Auburndale performed a Class I cumulative increment analysis with 78 sources identified by the State. The results of this analysis showed that Auburndale would not cause or significantly contribute to Class I increment exceedances at the Chassahowitzka WA.

### Air Quality Related Values Analysis

The Auburndale application and supplemental analyses sufficiently addressed potential effects on vegetation, soils, water, wildlife, and visibility in the Chassahowitzka WA from the proposed emissions. Based on our review of this information, we do not anticipate that these resources will be adversely affected by emissions from the proposed project.

In the near future, the Interagency Working Group on Air Quality Modeling will be releasing the revised MESOPUFF II model. This version will have the capability to calculate nitrate and sulfate deposition mass, as well as ground level concentrations. At that time, we will request that new sources which have a significant concentration impact in a Class I area perform cumulative modeling analyses to calculate both deposition and concentration at the respective Class I areas. Applicants can contact our Air Quality office in Denver for guidance on the deposition modeling. We appreciate your continued cooperation in requiring applicants to adequately

assess the impacts of new emissions on the resources in our Class I areas. If you have any questions regarding this matter, please contact Mr. John Notar of our Air Quality office in Denver at 303/969-2071.

Sincerely yours,



John R. Eadie  
Acting Regional Director

cc: 3 persons  
C. Holladay  
B. Thomas, SW Dist  
Q. Harper, EPA  
J. Davis, ECT  
D. Martin Poll Co.



Environmental Consulting & Technology, Inc.

October 12, 1992  
ECT No. 91077-0400-1100

Mr. C. H. Fancy, P.E.  
Chief  
Bureau of Air Quality Management  
Florida Department of  
Environmental Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Re: Auburndale Cogeneration Project  
PSD-FL-185, AC 53-208321

Dear Mr. Fancy:

Pursuant to the public notice requirements specified in your October 1, 1992 correspondence, proof of public notice publication for the above referenced project is attached. The public notice was published in The Auburndale Star on October 8, 1992.

In reviewing the draft permit, a clerical error on Table 1 - Allowable Emission Rates - was noticed. The draft permit was revised to reflect increased hourly sulfuric acid ( $H_2SO_4$ ) emission rates. However, the current draft permit retains the original annual emission rates for this pollutant. Annual  $H_2SO_4$  emission rates for gas and oil should be 32.9 and 61.3 tons per year, respectively.

Please contact me at (904) 336-0444 if there are any questions.

Sincerely,

ENVIRONMENTAL TECHNOLOGY & CONSULTING, INC.

Thomas W. Davis, P.E.  
Senior Engineer

TWD/tw  
Attachment

cc: Ms. Patricia Haslach, Mission Energy  
Mr. George Schott, Westinghouse

*J. K. Brown*  
*C. Holladay*  
*B. Thomas, sk Dist*

*J. Harper, EPA*  
*B. Mitchell, NPS*

RECEIVED

OCT 13 1992

Division of Air  
Resources Management

P.O. Box 8188  
Gainesville, FL  
32605-8188

5200 Newberry Road  
Suite E-1  
Gainesville, FL  
32607

(904)  
336-0444

FAX (904)  
335-0373

# The Auburndale Star

Published Weekly  
Auburndale, Polk County, Florida 33823

## STATE OF FLORIDA COUNTY OF POLK:

Before the undersigned authority personally appeared Pam Breuggeman  
who on oath says that she is Adv Manager of the Auburndale Star a  
weekly newspaper published at Auburndale in Polk County, Florida; that the attached  
copy of advertisement, being a Notice of Intent To Issue Permit  
in the matter of Dept Of Environmental Regulation ECT  
in the Circuit Court, was published in said newspaper in the issues  
of October 8, 1992

Affiant further says that the said Auburndale Star is a newspaper published at Auburndale,  
in said Polk County, Florida, and that the said newspaper has heretofore been continuously  
published in said Polk County, Florida, each week and has been entered as second class  
mail matter at the post office in Auburndale in said Polk County, Florida, for a period of  
one year next preceding the first publication of the attached copy of advertisement, and  
affiant further says that he has neither paid nor promised any person, firm or corporation  
any discount, rebate, commission or refund for the purpose of securing this advertisement  
for publication in the said newspaper.

Pam Breuggeman



**BILL CHESTNUT**  
My Comm. Exp: 11-5-95  
Bonded By Service Ins. Co.

Sworn to and subscribed before

me this 8th day of

OCT, A.D. 1992

Bill Chestnut  
Notary Public

## STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a PSD permit to Auburndale Power Partners, Limited Partnership, County Road 544-A (Derby Avenue), Auburndale, Polk County, Florida, to construct a 156 MW combined cycle system facility. A determination of Best Available Control Technology (BACT) was required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

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, within 14 days of publication of this notice. 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; 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 file action may be different from the position taken by it in this Notice. 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 publication 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.

The application is available for public inspection during normal business hours, 8:00 am to 5:00 pm, Monday through Friday, except legal holidays, at:

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

Department of Environmental Regulation  
Southwest District  
4520 Oak Fair Blvd.  
Tampa, Florida 33610-7347

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. 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 request must be submitted within 30 days of this notice.

October 8, 1992



October 12, 1992

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

RE: Polk County--A.P.  
Polk Power Partners, L.P.--Mulberry Cogeneration Project  
Permit Application AC 53-211670 and PSD-FL-187

Dear Clair:

Enclosed please find a copy of the notice of intent to issue the air construction permit for this project which was published in The Polk County Democrat on October 8, 1992.

We have provided several minor clarifications to the draft permit to John Reynolds, which he indicated would be made in the final permit. These clarifications involved:

1. Presenting emission limits for  $\text{NO}_x$ , sulfur content for  $\text{SO}_2$ , and opacity limits using fuel oil as backup after the first 3 years of operation (Specific Condition No. 2).
2. Specifying that natural gas and fuel oil can be fired until December 31, 1997 (3 years after the construction permit expiration date). After that date, the primary fuel will be natural gas; fuel oil can be used as a backup for no more than 30 days (Specific Condition No. 3). Fuel consumption rates for natural gas and fuel oil will be based on a temperature of 59°F or the benchmark. The number of hours of operation for the turbine firing fuel oil is 6,833, or 78 percent of the year.

In addition, a few clarifications to the BACT determination were discussed which made it more consistent with the specific conditions.

I greatly appreciate your staff's efforts in completing the review and issuing the draft permit.

Sincerely,

*Robert C. McCoskey*  
Kennard F. Kosky, P.E.  
President

KFK/tyf

cc: Mr. William Malenius, Ark Energy, Inc.  
Mr. Ward Marshall, Central and South West Services, Inc.  
File (2)

*J. Reynolds*  
*E. Villaday*

*B. Thomas, sup Dist*  
*B. Harper, EPA*  
*B. Mitchell, NPS*

*D. Martin, PCPD*

Division of Air  
Resources Management

91193A1/13

**KBN ENGINEERING AND APPLIED SCIENCES, INC.**

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

RECEIVED

OCT 13 1992

AFFIDAVIT OF PUBLICATION  
**The Polk County Democrat**  
Published Semi-Weekly  
Bartow, Polk County, Florida

Case No. \_\_\_\_\_

STATE OF FLORIDA  
COUNTY OF POLK

Before the undersigned authority personally appeared \_\_\_\_\_  
S. L. Frisbie, IV, who on oath says that (s)he is  
Publisher of The Polk County Democrat, a newspaper  
published at Bartow, Polk County, Florida; that the attached copy of advertisement,  
being a Notice of Intent to Issue Permit in the  
matter of POLK POWER PARTNERS

in the \_\_\_\_\_ Court, was published in said newspaper in the issues  
of October 8, 1992

Affiant further says that The Polk County Democrat is a newspaper published at  
Bartow, in said Polk County, Florida, and that said newspaper has heretofore been continu-  
ously published in said Polk County, Florida, each Monday and Thursday, and has been  
entered as second class matter at the post office in Bartow, in said Polk County, Florida, for a  
period of one year next preceeding the first publication of the attached copy of advertise-  
ment; and affiant further says that he has neither paid nor promised any person, firm, or  
corporation any discount, rebate, commission, or refund for the purpose of securing this  
advertisement for publication in said newspaper.

Signed \_\_\_\_\_

The foregoing instrument was acknowledged before me this 9th day of Oct.,

1992, by S. L. Frisbie, IV

who is personally known to me.

Teresa M. Pacetti

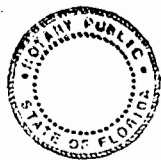
(Signature of Notary Public)

Teresa M. Pacetti

(Printed or typed name of Notary Public)

Notary Public

My Commission Expires:



Notary Public, State of Florida  
TERESA M. PACETTI  
My Comm. Exp. Dec. 19, 1995  
Comm. No. CC 169408

**DEPARTMENT OF  
ENVIRONMENTAL  
REGULATION  
NOTICE OF  
INTENT TO  
ISSUE PERMIT**

The Department of Environ-  
mental Regulation gives notice of  
its intent to issue a permit to  
POLK POWER PARTNERS,  
23293 South Pointe Drive, Lagu-  
na Hills, California 92653, to  
construct a cogeneration and CO2  
recovery facility 3.7 miles south-  
west of Bartow, Polk County, Flori-  
da. A determination of Best  
Available Control Technology  
(BACT) is required. The proposed  
project is subject to Prevention of  
Significant Deterioration (PSD)  
regulations and federal new sour-  
ce performance standards. Model-  
ing results show that increases in  
ground-level concentrations are  
less than PSD significant impact  
levels. The Department is issuing  
this Intent to Issue for the reasons  
stated in the Technical Evalua-  
tion and Preliminary  
Determination.

A person whose substantial  
interests are affected by the  
Department's proposed permit-  
ting decision may petition for an  
administrative proceeding (hear-  
ing) in accordance with Section  
120.57, Florida Statutes. The  
petition must contain the infor-  
mation set forth below and must  
be filed (received) in the Office of  
General Counsel of the Depart-  
ment at 2600 Blair Stone Road,  
Tallahassee, Florida 32399-2400,  
within (14) days of publication of  
this notice. Petitioner shall mail a  
copy of the petition to the applic-  
ant 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 deter-  
mination (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 state-  
ment of how and when each peti-  
tioner 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 peti-  
tioner contends warrant reversal  
or modification of the Depart-  
ment'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 propo-  
sed action; and (g) A statement of  
the relief sought by petitioner,  
stating precisely the action peti-  
tioner wants the Department to  
take with respect to the Depart-  
ment's action or proposed action.

If a petition is filed, the admini-  
strative hearing process is  
designed to formulate agency  
action. Accordingly, the Depart-  
ment's final action may be differ-  
ent from the position taken by it  
in this Notice. Persons whose  
substantial interests will be  
affected by any decision of the  
Department with regard to the  
application have the right to peti-  
tion to become a party to the  
proceeding. The petition must  
conform to the requirements spec-  
ified above and be filed (received)  
within 14 days of publication of  
this notice in the Office of General  
Counsel at the above address of  
the Department. Failure to peti-  
tion 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 subse-  
quent intervention will only be at  
the approval of the presiding offi-  
cer upon motion filed pursuant to  
Rule 28-5.207, F.A.C.

The application 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 Depart-  
ment of Environmental Regula-  
tion, Bureau of Air Regulation,  
2600 Blair Stone Road, Tallahas-  
see, Florida 32399-2400 and  
Department of Environmental  
Regulation, Southwest District,  
4520 Oak Fair Boulevard, Tampa,  
Florida 33610-7347.

Any person may send written  
comments on the proposed action  
to Mr. Preston Lewis at the  
Department's Tallahassee  
address. All comments received  
within 30 days of the publication



KOOGLER & ASSOCIATES

ENVIRONMENTAL SERVICES

4014 NW THIRTEENTH STREET  
GAINESVILLE, FLORIDA 32609  
904/377-5822 • FAX 377-7158

KA 521-92-04

October 13, 1992

RECEIVED

OCT 14 1992

Division of Air  
Resources Management

Mr. Clair Fancy  
Florida Department of  
Environmental Regulation  
Twin Towers Office Building  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Subject: Southdown, Inc. (dba Florida Mining & Materials)  
Proposed Permit Modification No. 2 Kiln  
AC27-212252, PSD-FL-188

Dear Mr. Fancy:

Southdown has received the Technical Evaluation and Preliminary Determination and proposed permit modification for No. 2 cement kiln at the FM&M facility located in Brooksville, Florida.

Upon reviewing the proposed permit and technical evaluation a few items, for which changes are needed or requested, were identified. These items are noted below.

#### TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. Section I.C.

Southdown would like to clarify that the actual feed rate to the kiln is 130 tons/hr, based on a measured preheater feed rate of 145 tons/hr.

2. Section I.C.

The kiln heat input rate, stated as "300,000 MMBTU/hr", should be corrected to "300 MMBTU/hr".

3. Section I.C. - Paragraph 3

The kiln oxygen analyzer, stated as being located in the kiln exhaust, is actually located at the kiln feed inlet. The oxygen analyzer is calibrated but it is not a certified oxygen monitor. Records of the instrument calibration will be maintained and logs of the oxygen concentration data will be maintained as required by the existing and proposed permits for this source. It is assumed that FDER was referring to the system presently in place and that a new analyzer is not being required by the permit. Use of the existing oxygen analyzer would be accurately reflected by modifying the phrase "in the stack" to "in the kiln inlet." It should be noted that the combustion gases from the process leave the kiln at the kiln inlet.

4. Section II - Paragraph 8A

The oxygen analyzer is incorrectly referred to as a CEM (see Item 3). Please modify the paragraph to read:

"The kiln exhaust gas oxygen analyzer located at the kiln inlet shall be calibrated, operated ...."

5. Section III - Paragraph 5

The cost of installing and maintaining a NOx CEM on a year-round basis does not seem to be justified. It is requested that FDER allow demonstration of compliance with the NOx emission limit by the use of a NOx analyzer to determine the NOx emissions based on a 30-day average. This would allow FDER to ensure that the kiln operation is in compliance with the permit limit while avoiding the expenditure of purchasing a NOx CEM system for the kiln. Thus, it is requested that this paragraph be modified as follows:

"... For compliance verification purposes, a 30-day test for NOx emissions shall be conducted within 30 days of the issuance of this permit and annually thereafter. Testing shall be in accordance with the requirements of the permit."



PERMIT NO. AC27-212252, PSD-FL-188

6. Specific Condition No. 3

The basis for the kiln maximum fuel input rate is listed in this condition. It is preferred that this basis ("24,000 lbs/hr of coal with a heating value of 12,500 BTU/lb") be deleted from this permit condition. This would serve to prevent confusion in the future, since these numbers may be mistakenly applied as additional permit limits on the kiln heat input.

7. Specific Condition No. 5

The tons per year of allowable SO<sub>2</sub> emissions were stated as 47.0 tons/year SO<sub>2</sub> in the existing permit instead of 47.15 tons/year. A correction of this error in the proposed permit at this time seems appropriate.

8. Specific Condition No. 6

It is requested that the permit limit for NO<sub>x</sub> of 250.0 lbs/hr be based on a 30-day average and that the averaging period be stated in Specific Condition No. 6.

9. Specific Condition No. 6

It is requested that EPA Method 7E be required, in place of Method 7, to allow the use of a continuous NO<sub>x</sub> analyzer for compliance testing. Method 7E is capable of more reliable results than Method 7. We are also requesting that a 30-day average of the NO<sub>x</sub> CEM data be used for the annual compliance test provided that the CEM calibration and maintenance during the 30-day period meet the applicable standards of 40CFR60.

10. Specific Condition No. 6

It is requested that EPA Method 6C be required, in place of Method 6, for annual SO<sub>2</sub> compliance testing.



11. Specific Condition No. 10

This condition refers to a CEM for oxygen and NOx concentration determination. A modification of this section is requested to reflect the present monitoring system. The following language is suggested:

"Emissions of NOx will be minimized through proper operation practices. A continuous kiln exhaust gas oxygen monitor and data recorder shall be operated, calibrated and maintained. Data for the recorder shall be kept for the most recent two year period and made available upon request."

12. Specific Condition No. 11(d)

A deletion of the minimum moisture content required to the coal storage pile is requested. The "8 percent" moisture, referred to in this condition, is based on the moisture content of the delivered coal rather than the stored coal. If an 8% surface moisture content were to be maintained, the facility would be required to add quantities of moisture to the coal which would lead to operational problems such as handling and low coal heating values. This issue has previously been discussed with FDER on the existing permit for Kiln No. 2 and the following changes were agreed to with FDER:

"Coal stored at or above natural grade shall be compacted, turned and/or watered as necessary to minimize fugitive PM emissions from the pile, and shall be aligned with the predominant wind direction to minimize wind erosion."

13. Specific Condition 11(c)

For the reasons stated above, condition 11(c), which requires the storage of all materials with less than 14% moisture to be "stored below natural grade in silos or enclosed structures;" is requested to be modified as follows:

"All non-covered raw materials storage areas shall be maintained so as to minimize particulate matter fugitive emissions."

Mr. Clair Fancy  
Florida Department of  
Environmental Regulation

October 13, 1992  
Page 5

14. Specific Condition No. 11(f)

Condition 11(f) refers to a "pneumatic conveying system" for loading cement products to transport trucks. A pneumatic conveying system has never been used at this facility for truck loading. The cement is released into the truck by gravity feed through a loading spout at the base of the storage units. Emissions from the unloading operation are controlled by use of a baghouse (Permit No. A027-194633). Therefore, please modify this condition as follows:

"All cement products shall be transferred to transport trucks through a loading spout."

Please note that the requested amendments will not reduce the operational requirements for compliance with the proposed permit emission limits.

Very truly yours,

KOOGLER & ASSOCIATES

  
John B. Koogler, Ph.D., P.E.

JBK:PAR:wa

c: Mr. Don Kelly, FM&M  
Mr. Amarjit S. Gill, Southdown  
Ms. Anetha Lue, Southdown

*B. Mitchell*

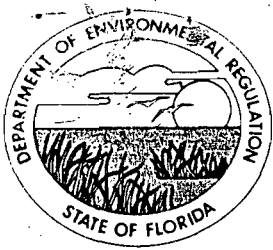
*B. Shannon, SW Dist*

*C. Patrick, AC*

*G. Harper, EPP*

*B. Mitchell, CRS*





# Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

October 1, 1992

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Ms. Patricia A. Haslach  
Environmental Manager  
Auburndale Power Partners, Limited Partnership  
12500 Fair Lakes Circle, Suite 420  
Fairfax, Virginia 22033

Dear Ms. Haslach:

Attached is one copy of the revised Technical Evaluation and Preliminary Determination and proposed permit to construct a 156 MW combined cycle system facility.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Preston Lewis of the Bureau of Air Regulation.

Sincerely,

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

CHF/TH/plm

Attachments

c: Thomas W. Davis, P.E.  
Bill Thomas, SWD  
Jewell Harper, USEPA  
Brian Mitchell, NPS

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

In the Matter of an  
Application for Permit by:

DER File No. AC 53-208321  
PSD-FL-185  
Polk County

Auburndale Power Partners,  
Limited Partnership  
County Road 544-A (Derby Avenue)  
Auburndale, Florida 33823

---

INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Auburndale Power Partners, Limited Partnership applied on February 2, 1992, to the Department of Environmental Regulation for a permit to construct a 156 MW combined cycle system facility. The facility is located in Auburndale, Polk County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes and Florida Administrative Code (F.A.C.) Chapters 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed work.

Pursuant to Section 403.815, Florida Statutes and Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "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. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 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.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

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 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, Florida Statutes.

The Petition shall contain the following information;

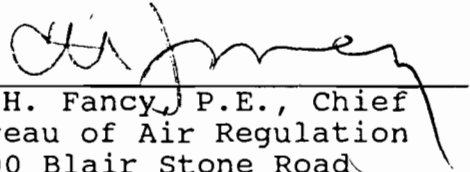
- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) 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 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, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 10-1-92 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

10-1-92

Date

Copies furnished to:

Thomas W. Davis, P.E.  
Bill Thomas, SWD  
Jewell Harper, USEPA  
Brian Mitchell, NPS

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a PSD permit to Auburndale Power Partners, Limited Partnership, County Road 544-A (Derby Avenue), Auburndale, Polk County, Florida, to construct a 156 MW combined cycle system facility. A determination of Best Available Control Technology (BACT) was required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

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, within 14 days of publication of this notice. 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 Notice. 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 publication 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.

The application 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 Regulation  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Department of Environmental Regulation  
Southwest District  
4520 Oak Fair Blvd.  
Tampa, Florida 33610-7347

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. 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.

Revised  
Technical Evaluation  
and  
Preliminary Determination

Auburndale Power Partners, Limited Partnership  
Auburndale, Polk County, Florida

156 MW Combined Cycle System

Permit Number: AC 53-208321  
PSD-FL-185

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

October 1, 1992

## SYNOPSIS OF APPLICATION

### I. NAME AND ADDRESS OF APPLICANT

Auburndale Power Partners, Limited Partnership  
12500 Fair Lakes Circle, Suite 420  
Fairfax, Virginia 22033

### II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: February 2, 1992

Completeness Review: Department letter dated March 10, 1992.

Response to Incompleteness Letters: Company letters received on April 28, May 19, June 18, and July 8, 1992.

Application Completeness Date: May 19, 1992.

### III. FACILITY INFORMATION

#### III.1 Facility Location

This facility is located on County Road 544-A (Derby Avenue) in Auburndale, Polk County, Florida. The UTM coordinates are Zone 17, 420.8 km East and 3103 km North.

#### III.2 Facility Identification Code (SIC)

Major Group No. 49 - Electric, Gas and Sanitary Services.

Industry Group No. 491 - Combination Electric, Gas and Other Utility Services.

Industry Group No. 4911 - Electric and Other Services Combined.

#### III.3 Facility Category

Auburndale Power Partners, Limited Partnership's proposed project in Auburndale is classified as a major emitting facility. The proposed 156 MW (megawatt) combined cycle system will emit the following pollutants: 573.8 tons per year (TPY) of nitrogen oxides (NO<sub>x</sub>); 175 TPY of sulfur dioxide (SO<sub>2</sub>); 191 TPY of carbon monoxide (CO); 46 TPY of particulate matter (PM); 27 TPY of volatile organic compounds (VOC); 0.014 TPY of beryllium; 0.51 TPY of lead; 0.060 TPY of mercury; and 23 TPY of sulfuric acid mist if operated at 8,360 hours per year on gas and 400 hours per year on fuel oil with a maximum of 0.05 percent sulfur(s) by weight.

#### IV. PROJECT DESCRIPTION

Auburndale Power Partners, Limited Partnership proposes to operate a combined cycle system consisting of one 104 MW combustion turbine (CT), Westinghouse 501D, one 52 MW steam turbine (ST), and one unfired heat recovery steam generator (HRSG) and ancillary equipment. This total system is rated at 156 MW output nominal capacity. Natural gas will be the primary fuel for the cogeneration facility over its lifetime. A long-term contract for natural gas has been obtained, and a pipeline to the site is scheduled to be completed by December 1, 1994. No. 2 distillate fuel oil (0.05% S by weight) will be the backup fuel. Fuel oil will be delivered to the site by truck and stored on site in two 600,000 gallon storage tanks. Pending the completion of the natural gas pipeline, fuel oil may be used continuously during the facility's first 18 months of operation. Fuel oil will be used for a maximum of 400 hours per year thereafter. The CT will be served by a single HRSG, exhausting to an individual stack. There will be no bypass stacks on the CT for simple cycle operation.

#### V. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code (F.A.C.), and 40 CFR (July, 1990 version).

The plant is located in an area designated attainment for all criteria pollutants in accordance with F.A.C. Rule 17-2.420.

The proposed project will be reviewed under F.A.C. Rule 17-2.500(5), New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a major modification to a major facility. This review consists of a determination of Best Available Control Technology (BACT) and unless otherwise exempted, an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the project's impacts on soils, vegetation and visibility; along with air quality impacts resulting from associated commercial, residential and industrial growth.

The proposed source shall be in compliance with all applicable provisions of F.A.C. Chapters 17-2 and 17-4 and the 40 CFR (July, 1991 version). The proposed source shall be in compliance with all applicable provisions of F.A.C. Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; 17-2.660: Standards of Performance for New Stationary Sources (NSPS); 17-2.700: Stationary Point Source Emission Test Procedures; and, 17-4.130: Plant Operation-Problems.

The source shall be in compliance with the New Source Performance Standards for Gas Turbines, Subpart GG, Appendix A, which is contained in 40 CFR 60, and is adopted by reference in F.A.C. Rule 17-2.660.

## VI. SOURCE IMPACT ANALYSIS

### VI.1 Emission Limitations

The operation of this combined cycle system facility burning No. 2 fuel oil and natural gas will produce emissions of NO<sub>x</sub>, SO<sub>2</sub>, CO, sulfuric acid mist, PM, As, F, Be, Pb and Hg. The impact of these pollutant emissions are below the Florida ambient air quality standards (AAQS) and/or the acceptable ambient concentration levels (AAC). Table 1 lists each contaminant and its maximum expected emission rates.

### VI.2 Air Toxics Evaluation

The operation of the sources will produce emissions of chemical compounds that may be toxic in high concentrations. The emission rates of these chemicals shall not create ambient concentrations greater than the acceptable ambient concentrations (AAC) as shown below. Determination of the AAC for these organic compounds shall be determined by Department approved dispersion modeling or ambient monitoring.

$$AAC = \frac{OEL}{\text{Safety Factor}}$$

Where,

AAC = acceptable ambient concentration

Safety Factor = 50 for category B substances and 8 hrs/day  
100 for category A substances and 8 hrs/day  
210 for category B substances and 24 hrs/day  
420 for category A substances and 24 hrs/day

OEL = Occupational exposure level such as ACGIH, ASHA and NIOSH published standards for toxic materials.

MSDS = Material Safety Data Sheets

### VI.3 Air Quality Analysis

#### a. Introduction

The operation of the proposed facility will result in emissions increases which are projected to be greater than the PSD significant emission rates for the following pollutants: NO<sub>x</sub>, SO<sub>2</sub>, PM, PM<sub>10</sub>, Be, CO, VOC, Pb, inorganic arsenic, and H<sub>2</sub>SO<sub>4</sub> mist. Therefore, the project is subject to the PSD NSR requirements contained in F.A.C. Rule 17-2.500(5) for these pollutants. Part of these requirements is an air quality impact analysis for these pollutants, which includes:

- An analysis of existing air quality;

- A PSD increment analysis (for SO<sub>2</sub>, PM, PM<sub>10</sub>, and NO<sub>x</sub>);
- An ambient Air Quality Standards analysis (AAQS);
- An analysis of impacts on soils, vegetation, visibility and growth-related air quality impacts; and,
- A Good Engineering Practice (GEP) stack height determination.

The analysis of existing air quality generally relies on preconstruction monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses are based on air quality dispersion modeling completed in accordance with EPA guidelines.

Based on these required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or ambient air quality standard. A brief description of the modeling methods used and results of the required analyses follow. A more complete description is contained in the permit application on file.

#### b. Analysis of the Existing Air Quality

Preconstruction ambient air quality monitoring may be required for pollutants subject to PSD review. However, an exemption to the monitoring requirement can be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined through air quality modeling, is less than a pollutant-specific de minimus concentration. The predicted maximum concentration increase for each pollutant subject to PSD (NSR) is given below:

	SO <sub>2</sub>	TSP & PM <sub>10</sub>	NO <sub>x</sub>	CO	Be	Pb
PSD de minimus Concentra. (ug/m <sup>3</sup> )	13	10	14	575	0.001	0.1
Averaging Time	24-hr	24-hr	Annual	8-hr	24-hr	3 mo.
Maximum Predicted Impact (ug/m <sup>3</sup> )	2.8	2.7	0.16	10.3	.0002	<.007

There are no monitoring de minimus concentrations for H<sub>2</sub>SO<sub>4</sub> mist and inorganic arsenic. As shown above, the predicted impacts are all less than the corresponding de minimus concentrations; therefore, no preconstruction monitoring is required for these pollutants.

#### c. Modeling Method

The EPA-approved Industrial Source Complex Short-Term (ISCST)

dispersion model was used by the applicant to predict the impact of the proposed project on the surrounding ambient air. All recommended EPA default options were used. Downwash parameters were used because the stacks were less than the good engineering practice (GEP) stack height. Five years of sequential hourly surface and mixing depth data from the Tampa Florida National Weather Service (NWS) station collected during 1982 through 1986 were used in the model. Since five years of data were used, the highest-second-high (HSH) short-term predicted concentrations are compared with the appropriate ambient air quality standards or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards.

#### d. Modeling Results

The applicant first evaluated the potential increase in ambient ground-level concentrations associated with the project to determine if these predicted ambient concentration increases would be greater than specified PSD significant impact levels for criteria pollutants SO<sub>2</sub>, CO, NO<sub>2</sub>, PM and PM<sub>10</sub>. This evaluation was based on the proposed facility operating at load conditions of 100%, 92°F; 80%, 47°F; and 65%, 29°F. Dispersion modeling was performed with receptors placed along the 36 standard radial directions (10 degrees apart) surrounding the proposed unit beginning at 250m and going out at intervals of 250m to a distance of 1500m from the proposed facility. Additional rings were placed at intervals of 2.0, 2.5, 3.0, 4.0, 5.0, 7.5, 10.0, 15.0 and 20.0 km. The results of this modeling presented below show that the increases in ambient ground-level concentrations for all averaging times are less than the PSD significant impact levels for SO<sub>2</sub>, CO, NO<sub>2</sub>, PM and PM<sub>10</sub>.

Avg. Time PSD Signifi. Level (ug/m <sup>3</sup> )	SO <sub>2</sub>			NO <sub>2</sub>		CO		PM and PM <sub>10</sub>	
	Annual	3-hr	24-hr	Annual		1-hr	8-hr	Ann.	24-hr
	1.0	25.0	5.0	1.0		2000	500	1.0	5.0
Ambient Concen. Increase (ug/m <sup>3</sup> )	0.2	12.6	2.8	0.2		15	10	0.04	1.4

Therefore, further dispersion modeling for comparison with AAQS and PSD Class II increment consumption were not required for these pollutants. Pb has no significant impact level; however, maximum predicted Pb concentrations of 0.007 ug/m<sup>3</sup>, 24-hour average were less than the 1.5 ug/m<sup>3</sup> quarterly ambient air quality standard.

Be, inorganic arsenic and H<sub>2</sub>SO<sub>4</sub> mist are noncriteria pollutants, which means that neither national AAQS nor PSD Significant Impacts have been defined for these pollutants. However, the Department does have a draft Air Toxics Permitting Strategy, which defines no threat levels for these pollutants. The

Department and the applicant have used the same modeling procedure described above to evaluate the maximum ground level concentrations of these pollutants for comparison with the no-threat levels. The results of this analysis are shown below:

<u>Avg. Time</u>	<u>Be Annual</u>	<u>H<sub>2</sub>SO<sub>4</sub> mist 24-hr</u>	<u>As Annual</u>
No Threat-Level (ug/m <sup>3</sup> )	0.00042	2.4	.00023
<u>Max. Concen.</u>	<u>0.000003</u>	<u>0.5</u>	<u>.00015</u>

All of these values are less than their respective no-threat levels.

The nearest PSD Class I area is the Chassahowitzka National Wilderness Area located about 100 km northwest of the facility. The predicted impact of SO<sub>2</sub> and NO<sub>2</sub> emissions from the proposed project on this area was evaluated by first using the ISCST model to predict maximum increment consumptions by the source alone and by comparing these predicted values to the appropriate recommended significance levels to determine whether further modeling was necessary. The significance levels used by the Department were the more stringent National Park Service (NPS) recommended levels. The predicted maximum NO<sub>2</sub> and SO<sub>2</sub> increment consumptions for all applicable averaging times, except for the SO<sub>2</sub> 24-hour average, were less than these significance levels. Therefore, no further modeling for these time periods was required. Since the predicted maximum SO<sub>2</sub> 24-hour concentration was predicted to be greater than the NPS levels, the Department and the NPS directed the applicant to further evaluate the SO<sub>2</sub> short term impacts on the Class I area. The applicant used ISCST and modeled the inventory of all PSD increment consuming and expanding sources on the selected days and at the specific receptors where the proposed facility's impacts were significant. The inventory was provided by the Department. Results of this analysis show that on the days and at the location of significant impacts due to the proposed facility, total 24-hour SO<sub>2</sub> impacts at Chassahowitzka were predicted to be less than the allowable 24-hour PSD Class I increment of 5 ug/m<sup>3</sup>. Therefore, emissions from the proposed project will not cause or contribute to an exceedance of SO<sub>2</sub> increments.

#### e. Additional Impacts Analysis

A Level-1 screening analysis using the EPA model, VISCREEN was used to determine any potential adverse visibility impacts on the Class I Chassahowitzka National Wilderness Area located about 100km away. Based on this analysis, the maximum predicted visual impacts due to the proposed project are less than the screening criteria both inside and outside the Class I area. A comprehensive air quality related values (AQRV) analysis for this Class I area



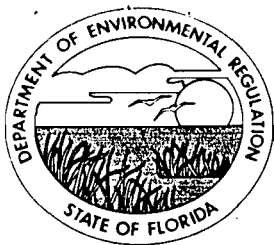
was performed by the applicant. No significant impacts on the Class I area are expected.

In addition, the maximum predicted concentrations from NO<sub>x</sub>, CO, SO<sub>2</sub>, PM and PM<sub>10</sub> are predicted to be less than the AAQS, including the national secondary standards designed to protect public welfare-related values. As such, no harmful effects on soil and vegetation are expected in the area of the project. Also, the proposed modification will not significantly change employment, population, housing or commercial/industrial development in the area to the extent that a significant air quality impact will result.

#### VII. CONCLUSION

Based on the information provided by Auburndale Power Partners, Limited Partnership, the Department has reasonable assurance that the proposed installation of the 156 MW combined cycle system, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-2 of the Florida Administrative Code.

*Shanton Linn  
#41755*



## Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

**PERMITTEE:**

Auburndale Power Partners  
12500 Fair Lakes Circle, Ste. 420  
Fairfax, Virginia 22033

Permit Number: AC 53-208321  
PSD-FL-185

Expiration Date: Oct. 30, 1995  
County: Polk

Latitude/Longitude: 28°03'15"N  
81°48'20"W

Project: 156 MW Combined Cycle  
System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 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 or on file with the Department and made a part hereof and specifically described as follows:

Auburndale Power Partners proposes to operate a combined cycle system consisting of one combustion turbine, one steam turbine, and one heat recovery steam generator and ancillary equipment. This total system is rated at 156 MW output nominal capacity (52 MW output from the steam turbine generator). This facility is located on County Road 544-A (Derby Avenue) in Auburndale, Polk County, Florida. The UTM coordinates are Zone 17, 420.8 km East and 3103 km North.

The 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. Auburndale Power Partners (APP) application received February 10, 1992.
2. Department's letter dated March 10, 1992.
3. APP's letter received April 28, 1992.
4. APP's letter received May 19, 1992.
5. APP's letter received June 18, 1992.

PERMITTEE:  
Auburndale Power Partners

Permit Number: AC 53-208321  
PSD-FL-185  
Expiration Date: October 30, 1995

**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.

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PSD-FL-185

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**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.

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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 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- (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;

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- 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:**

Emission Limits

1. The maximum allowable emissions from this source shall not exceed the emission rates listed in Table 1.
2. Visible emissions shall not exceed 20% opacity. At full load, visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year).
4. This source is allowed to use natural gas as the primary fuel and low sulfur No. 2 distillate oil as the secondary fuel (with the conditions specified in Specific Condition No. 5 below).
5. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:
  - a). Maximum low sulfur No. 2 fuel oil consumption for the facility shall be allowed for the equivalent of 18 months (13,140 hours) of the initial facility operation, or until the Florida Gas Transmission (FGT) Phase III expansion is complete and natural gas is available; whichever occurs first. The unit start-up is expected by 10/94 and natural gas would be used by 4/96.
  - b) Once the FGT Phase III expansion is complete and natural gas is available to the facility, low sulfur No. 2 fuel oil firing shall be limited to 400 hours annually.

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**SPECIFIC CONDITIONS:**

- c) Maximum sulfur content in No. 2 fuel oil shall not exceed 0.05 percent by weight.
  - d) The maximum heat input of 1,170 MMBtu/hr LHV at ISO conditions (base load) for distillate fuel oil No. 2.
  - e) The maximum heat input of 1,214 MMBtu/hr LHV at ISO conditions (base load) for natural gas.
6. Any change in the method of operation, equipment or operating hours shall be submitted to DER's Bureau of Air Regulation.
7. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility may be included in the operating permit.

Compliance Determination

8. Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, and VOC standards shall be determined (while operating at 95-100% of the permitted maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July, 1991 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
- Method 25A. Determination of the Volatile Organic Compounds Emissions from Stationary Sources

Other DER approved methods may be used for compliance testing after prior Departmental approval.

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

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**SPECIFIC CONDITIONS:**

10. Compliance with the SO<sub>2</sub> emission limit can also be determined by calculations based on fuel analysis using ASTM D4292 for the sulfur content of liquid fuels and ASTM D4084-82 or D3246-81 for sulfur content of gaseous fuel.

11. Trace elements of Beryllium (Be) shall be tested during initial compliance test using EMTIC Interim Test Method. As an alternative, Method 104 may be used; or Be may be determined from fuel sample analysis using either Method 7090 or 7091, and sample extraction using Method 3040 as described in the EPA solid waste regulations SW 846.

12. Mercury (Hg) shall be tested during initial compliance test using EPA Method 101 (40 CFR 61, Appendix B) or fuel sampling analysis using methods acceptable to the Department.

13. During performance tests, to determine compliance with the proposed NO<sub>x</sub> standard, measured NO<sub>x</sub> emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$\text{NO}_x = (\text{NO}_x \text{ obs}) \cdot \left( \frac{P_{\text{ref}}}{P_{\text{obs}}} \right)^{0.5} \cdot e^{19 (H_{\text{obs}} - 0.00633)} \cdot \left( \frac{288^\circ\text{K}}{T_{\text{AMB}}} \right)^{1.53}$$

where:

NO<sub>x</sub> = Emissions of NO<sub>x</sub> at 15 percent oxygen and ISO standard ambient conditions.

NO<sub>x</sub> obs = Measured NO<sub>x</sub> emission at 15 percent oxygen, ppmv.

P<sub>ref</sub> = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P<sub>obs</sub> = Measured combustor inlet absolute pressure at test ambient pressure.

H<sub>obs</sub> = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T<sub>AMB</sub> = Temperature of ambient air at test.

14. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in writing in advance of the compliance test(s). The sources shall



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**SPECIFIC CONDITIONS:**

operate between 95% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature. Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

15. The permittee shall leave sufficient space suitable for future installation of SCR equipment should the facility be unable to meet the NO<sub>x</sub> standards, if required.

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

17. A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. While steam injection is being utilized for NO<sub>x</sub> control, the steam to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

18. Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel delivery receipts. The records of fuel oil usage shall be kept by the company for a two-year period for regulatory agency inspection purposes. For sulfur dioxide, periods of excess emissions shall be reported if the fuel being fired in the gas turbine exceeds 0.05 percent sulfur by weight.

Rule Requirements

19. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code and 40 CFR (July, 1991 version).

20. The sources shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

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

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

23. If construction does not commence within 18 months of issuance of this permit, then the permittee shall obtain from DER a review and, if necessary, a modification of the control technology and allowable emissions for the unit(s) on which construction has not commenced (40 CFR 52.21(r)(2)).

24. Quarterly excess emission reports, in accordance with the July 1, 1991 version of 40 CFR 60.7 and 60.334 shall be submitted to DER's Southwest District office.

25. Literature on equipment selected shall be submitted as it becomes available. A CT-specific graph of the relationship between NOx emissions and steam injection and also another of ambient temperature and heat inputs to the CT shall be submitted to DER's Southwest District office and the Bureau of Air Regulation.

26. Construction period fugitive dust emissions shall be minimized by covering or watering dust generation areas.

27. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur, nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

28. 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).

29. 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

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**SPECIFIC CONDITIONS:**

noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this \_\_\_\_\_ day  
of \_\_\_\_\_, 1992

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

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Carol M. Browner  
Secretary

**Auburndale Power Partners - AC53-208321 (PSD-FL-185)**

**TABLE 1 - ALLOWABLE EMISSION RATES**

<u>Pollutant</u>	<u>Fuel<sup>A</sup></u>	<u>Allowable Emission Standard/Limitation</u>	<u>Basis</u>
NO <sub>x</sub>	Gas	15 ppmvd @ 15% O <sub>2</sub> & ISO ( 78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> & ISO (131.0 lbs/hr; 573.8 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	7.5 lbs/hr; 22.3 TPY	BACT
	Oil	14 lbs/hr; 39.0 TPY	BACT
Opacity	Gas	10% opacity <sup>D</sup>	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl.
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl.
As	Oil	1.61 x 10 <sup>-4</sup> lb/MMBtu (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> lb/MMBtu (0.04 lb/hr; 0.17 TPY)	Appl.
Be	Oil	2.0 x 10 <sup>-6</sup> lb/MMBtu (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> lb/MMBtu (0.13 lb/hr; 0.510 TPY)	BACT

A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil.

Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.

B) The NO<sub>x</sub> maximum limit will be lowered to 15 ppm by 9/30/97 (about 18 months after natural gas is first fired) using appropriate combustion technology improvements or SCR.

C) 21 ppmvd at minimum load.  
15 ppmvd at base load.

D) 10% opacity at full load conditions.

Best Available Control Technology (BACT) Determination  
Auburndale Power Partners  
Polk County

The applicant proposes to install a combustion turbine generator at their facility in Polk County. The generator system will consist of one nominal 104 megawatt (MW) combustion turbine (CT), with exhaust through heat recovery steam generator (HRSG), which will be used to power a nominal 52 MW steam turbine.

The combustion turbine (Westinghouse 501D) will be capable of combined cycle operation. The applicant requested that the combustion turbine use oil (0.05% S by weight) for the first eighteen (18) months; thereafter, they will use natural gas. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity factor and type of fuel fired to be as follows:

Pollutant	Emissions (TPY)		PSD Significant Emission Rate (TPY)
	Oil	Gas/Oil	
NO <sub>x</sub>	1,007	573.8	40
SO <sub>2</sub>	307	175.2	40
PM/PM <sub>10</sub>	161	46	25/15
CO	320	190	100
VOC	44	27	40
H <sub>2</sub> SO <sub>4</sub>	39	23	7
Be	0.01	0.01	0.0004
As	0.05	0.05	0.1
Pb	0.51	0.51	0.6

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

Date of Receipt of a BACT Application

February 2, 1992

BACT Determination Requested by the Applicant

<u>Pollutant</u>	<u>Proposed Limits</u>
NO <sub>x</sub>	25 ppmvd @ 15% O <sub>2</sub> (natural gas burning) 42 ppmvd @ 15% O <sub>2</sub> for oil firing
SO <sub>2</sub>	0.05% sulfur by weight
CO, VOC	Combustion Control
PM/PM <sub>10</sub>	Combustion Control

BACT Determination Procedure

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

- (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards or BACT determinations of any other state.
- (d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, 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 combined cycle power plants can be grouped into categories based upon what control equipment and techniques are available to control emissions from these facilities. Using this approach, the emissions can be classified as follows:

- o Combustion Products (e.g., particulates). Controlled generally by good combustion of clean fuels.
- o Products of Incomplete Combustion (e.g., CO). Control is largely achieved by proper combustion techniques.
- o Acid Gases (e.g., NO<sub>x</sub>). Controlled generally by gaseous control devices.

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

#### BACT POLLUTANT ANALYSIS

##### COMBUSTION PRODUCTS

###### **Particulate Matter (PM/PM<sub>10</sub>)**

The design of this system ensures that particulate emissions will be minimized by combustion control and the use of clean fuels. The particulate emissions from the combustion turbine when burning natural gas and fuel oil will not exceed 0.013 and 0.047 lb/MMBtu, respectively. The Department accepts the applicant's proposed control for particulate matter and heavy metals.

###### **Lead, Arsenic, Beryllium (Pb, As, Be)**

The Department agrees with the applicant's rationale that there are no feasible methods to control lead, beryllium, and arsenic; except by limiting the inherent quality of the fuel.

Although the emissions of these toxic pollutants could be controlled by particulate control devices, such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of these pollutants.

##### PRODUCTS OF INCOMPLETE COMBUSTION

###### **Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)**

The emissions of carbon monoxide exceed the PSD significant emission rate of 100 TPY. The applicant has indicated that the carbon monoxide emissions from the proposed turbine is on exhaust concentrations of 15 ppmvd for natural gas firing and 25 ppmvd for fuel oil firing.

The majority of BACT emissions limitations have been based on combustion controls for carbon monoxide and volatile organic compounds minimization, additional control is achievable through the use of catalytic oxidation. Catalytic oxidation is a postcombustion control that has been employed in CO nonattainment areas where regulations have required CO emission levels to be less than those associated with wet injection. These installations have been required to use LAER technology and typically have CO limits in the 10-ppm range (corrected to dry conditions).

In an oxidation catalyst control system, CO emissions are reduced by allowing unburned CO to react with oxygen at the surface of a precious metal catalyst such as platinum. Combustion of CO starts at about 300°F, with efficiencies above 90 percent occurring at temperatures above 600°F. Catalytic oxidation occurs at temperatures 50 percent lower than that of thermal oxidation, which reduces the amount of thermal energy required. For CT/HRSG combinations, the oxidation catalyst can be located directly after the CT or in the HRSG. Catalyst size depends upon the exhaust flow, temperature, and desired efficiency.

Due to the oxidation of sulfur compounds and excessive formation of H<sub>2</sub>SO<sub>4</sub> mist emissions, oxidation catalyst are not considered to be technically feasible for gas turbines fired with fuel oil. Catalytic oxidation has not been demonstrated on a continuous basis when using fuel oil.

Use of oxidation catalyst technology would be feasible for natural gas-fired unit; however, the cost effectiveness of \$7,099 per ton of CO removed will have an economic impact on this project.

The Department is in agreement with the applicant's proposal of combustor design and good operating practices as BACT for CO and VOCs for this cogeneration project.

#### ACID GASES

##### **Nitrogen Oxides (NO<sub>x</sub>)**

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<sub>x</sub> control.

The applicant has stated that BACT for nitrogen oxides will be met by using steam injection and advanced combustor design to limit emissions to 25 ppmvd (corrected to 15% O<sub>2</sub>) when burning natural gas and 42 ppmvd (corrected to 15% O<sub>2</sub>) when burning fuel oil.



A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NO<sub>x</sub> emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NO<sub>x</sub> emissions. The SCR process combines vaporized ammonia with NO<sub>x</sub> in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NO<sub>x</sub> with a new catalyst. As the catalyst ages, the maximum NO<sub>x</sub> reduction will decrease to approximately 86 percent.

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

- a) Reduced power output.
- b) Ammonia slip.
- c) Disposal of hazardous waste generated (spend catalyst).
- d) A total SCR energy penalty of 14,911 MMBtu/yr, which is equivalent to the use of 14.2 million ft<sup>3</sup> of natural gas annually, based on a gas heating value of 1,050 Btu per ft<sup>3</sup>.
- e) Since several schools are located within close proximity to the site, the Polk County Planning Commission and the school boards have expressed concern over the potential for ammonia (NH<sub>3</sub>) exposure to high concentration and storage, as well.
- f) Ammonium bisulfate and ammonium sulfate particulate emissions (ammonium salts) due to the reaction of NH<sub>3</sub> with SO<sub>3</sub> present in the exhaust gases.
- g) Cost effectiveness for the application of SCR technology to the Auburndale cogeneration project was considered to be \$6,900 per ton of NO<sub>x</sub> removed.

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

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

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

For fuel oil firing, the cost associated with controlling NO<sub>x</sub> emissions must take into account the potential operating problems that can occur with using SCR in the oil firing mode.

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

The latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NO<sub>x</sub> injection ratio. For natural gas firing operation NO<sub>x</sub> emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater injection ratio. By lowering the injection ratio for oil firing, testing has indicated that NO<sub>x</sub> can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases. Based on this strategy SCR has been both proposed and established as BACT for oil fired combined cycle facilities with NO<sub>x</sub> 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 cost (operating plus amortized capital cost) to install SCR for this project at 100 percent capacity factor is \$2,283,326. Taking into consideration the total annual cost, a cost/benefit analysis of using SCR can now be developed.

Based on the information supplied by the applicant, it is estimated that the maximum annual NO<sub>x</sub> emissions using steam injection and advanced combustor design will be 574 tons/year. Assuming that SCR would reduce the NO<sub>x</sub> emissions by 65%, about 201 tons of NO<sub>x</sub> would be emitted annually. When this reduction (373 TPY) is taken into consideration with the total levelized annual cost of \$2,283,326; the cost per ton of controlling NO<sub>x</sub> is \$6,121. This calculated cost is higher than has previously been approved as BACT.

A review of the latest DER BACT determinations show limits of 15 ppmv (natural gas) using low-NO<sub>x</sub> burn technology. Based on the equipment selected, the applicant could not achieve that limit (15 ppmv) due to the fact that it is technically infeasible since their vendor, Westinghouse, does not presently offer this technology. The applicant and their CT vendor, Westinghouse, have agreed to lower NO<sub>x</sub> to 15 ppm by 9/30/97. This lower NO<sub>x</sub> limit will be

achieved by application of low-NO<sub>x</sub> burners or SCR. Therefore, the Department has accepted the steam injection and advanced combustor design as BACT for a limited time (up to 9/30/97).

#### **Sulfur Dioxide(SO<sub>2</sub>) and Sulfuric Acid Mist (H<sub>2</sub>SO<sub>4</sub>)**

The applicant has stated that sulfur dioxide (SO<sub>2</sub>) and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) emissions when firing fuel oil will be controlled by lowering the operating time to 400 hours/year per unit and the fuel oil sulfur content to a maximum of 0.05 % by weight. This will result in an annual emission rate of 175 tons SO<sub>2</sub> per year and 23 tons H<sub>2</sub>SO<sub>4</sub> mist per year.

In accordance with the "top down" BACT review approach, only two alternatives exist that would result in more stringent SO<sub>2</sub> emissions. These include the use of a lower sulfur content fuel oil or the use of wet lime or limestone-based scrubbers, otherwise known as flue gas desulfurization (FGD).

In developing the NSPS for stationary gas turbines, EPA recognized that FGD technology was inappropriate to apply to these combustion units. EPA acknowledged in the preamble of the proposed NSPS that "Due to the high volumes of exhaust gases, the cost of flue gas desulfurization (FGD) to control SO<sub>2</sub> emissions from stationary gas turbines is considered unreasonable." (23). EPA reinforced this point when, later on in the preamble, they stated that "FGD... would cost about two to three times as much as the gas turbine." (23). The economic impact of applying FGD today would be no different.

Furthermore, the application of FGD would have negative environmental and energy impacts. Sludge would be generated that would have to be disposed of properly, and there would be increased utility (electricity and water) costs associated with the operation of a FGD system. Finally, there is no information in the open literature to indicate that FGD has ever been applied to stationary gas turbines burning distillate oil.

The elimination of flue gas control as a BACT option then leaves the use of low sulfur fuel oil as the next option to be investigated. Auburndale Power Partners, as stated above, has proposed the use of No. 2 fuel oil with a 0.05% sulfur by weight as BACT for this project. The Department accepts their proposal as BACT for this project.

### BACT Determination by DER

#### NO<sub>x</sub> Control

The information that the applicant presented and Department calculations indicates that the cost of controlling NO<sub>x</sub> (\$6,900/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<sub>x</sub> control is not justifiable as BACT at this time.

A review of the permitting activities for combined cycle proposals across the nation indicates that SCR has been required and most recently proposed for installations with a variety of operating conditions (i.e., natural gas, fuel oil, 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 steam injection and advanced combustor design as BACT for a limited time (up to 9/30/97).

The Department will revise and lower the allowable BACT limit for this project no later than 9/30/97. It is the Department's understanding that Westinghouse will develop new combustor technology within this period. If the 15 (gas)/42 (oil) ppmvd emission rates cannot be met by September 30, 1997, SCR will be installed. Therefore, the permittee shall install a duct module suitable for future installation of SCR equipment.

#### SO<sub>2</sub> Control

BACT for sulfur dioxide is the burning of fuel oil No. 2 with 0.05% sulfur content by weight.

#### VOC and CO Control

Combustion control will be considered as BACT for CO and VOC when firing natural gas.

#### Other Emissions Control

The emission limitations for PM and PM<sub>10</sub>, Be, Pb, and As are based on previous BACT determinations for similar facilities.

The emission limits for Auburndale Power Partners project are thereby established as follows:

Pollutant	Emission Standards/Limitations		Method of Control
	Oil (a)	Gas (b)	
NO <sub>x</sub>	42 ppmv	25 ppmv (c) 15 ppmv	Steam Injection
CO	73 lbs/hr	44 lbs/hr	Combustion
PM & PM10	37 lbs/hr	10 lbs/hr	Combustion
SO <sub>2</sub>	70 lbs/hr	40 lbs/hr	No. 2 Fuel Oil (0.05% S)
H <sub>2</sub> SO <sub>4</sub>	14 lbs/hr	7.5 lbs/hr	No. 2 Fuel Oil (0.05% S)
VOC	10 lbs/hr	6 lbs/hr	Combustion
Pb	0.13 lb/hr		Fuel Quality
As	0.20 lb/hr		Fuel Quality
Be	0.003 lb/hr		Fuel Quality

- (a) No. 2 fuel oil burning for the first eighteen (18) months of operation. Max. 0.05% S by weight.  
(b) Natural gas (8360 hours per year), Fuel oil (400 hours per year).  
(c) Initial NO<sub>x</sub> emission rates for natural gas firing shall not exceed 25 ppm at 15% oxygen on a dry basis. The permittee shall achieve NO<sub>x</sub> emissions of 15 ppm at 15% oxygen at the earliest achievable date based on steam injection technology or any other technology available, but no later than 9/30/97.

Details of the Analysis May be Obtained by Contacting:

Preston Lewis, BACT Coordinator  
Department of Environmental Regulation  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Recommended by:

Approved by:

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

Carol M. Browner, Secretary  
Dept. of Environmental Regulation

\_\_\_\_\_  
Date 1992

\_\_\_\_\_  
Date 1992



September 9, 1992

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

RECEIVED  
SEP 10 1992  
Division of Air  
Resources Management

Re: Central Florida Power Limited Partnership  
Tiger Bay (formerly Central Florida) Cogeneration Plant  
PSD-FL-190  
AC 53-214903

Dear Mr. Fancy:

This correspondence presents a clarification of Attachment 1, Manufacturer's Design Specifications for the Combustion Turbine, provided in my letter of August 26, 1992, and discussed between Mr. Robert McCann, KBN, and Mirza Baig on August 27, 1992. In that attachment, design specifications were given for GE PG7221(FA) and Westinghouse 501F combustion turbines. In August, more recent information was obtained, and the Westinghouse data are slightly different from the information presented in the permit application submitted on June 12, 1992.

As shown in Tables 1 through 4, the changes in maximum emission rates for the Westinghouse turbine are minor and generally are within approximately 2 percent of the rates specified in the permit application (see Tables 5 through 8). The emission rates for other regulated and non-regulated pollutants increase slightly due to the slight increase in the heat input rate (i.e., MMBtu/hr) which generally is the basis of the emission factor for those pollutants. Comparisons of the maximum emissions for the Westinghouse and GE turbines as presented in the permit application and for the revised Westinghouse turbine are presented in Tables 9 through 12. As shown, the emission data, in tons per year (TPY), for the GE machine at 72°F ambient temperature are higher for all pollutants except VOC when compared to the Westinghouse data. The revised maximum VOC emission rate for the Westinghouse turbine is slightly higher than that presented in the permit application (45.6 TPY compared to 45.3 TPY).

Table 3-1 from the support document to the PSD permit application has been revised to reflect the worst-case emission rates for each pollutant from either turbine. The worst-case emission rates are used to determine pollutant applicability under PSD regulations by comparing the maximum allowable emissions for the project to the PSD significant emission rates.

The modeling analysis presented as part of the permit application also does not significantly change and still provides a conservative estimate of short-term and annual impacts. The impacts were based on the the worst-case emission rates from either the GE emission data or the previous Westinghouse emission data which are still higher than the updated Westinghouse emission data.

12018A1/4

KBN ENGINEERING AND APPLIED SCIENCES, INC.

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

EQUAL EMPLOYMENT OPPORTUNITY / AN AFFIRMATIVE ACTION EMPLOYER

Mr. Clair H. Fancy, Chief  
September 8, 1992  
Page 2



Therefore, the updated design specifications for the Westinghouse turbine are not a significant change from the material presented in the original application and should not materially affect any conclusions drawn from original application.

Please call me if there any further questions on the material submitted.

Sincerely,

A handwritten signature in cursive script that reads 'Kennard F. Kosky'.

Kennard F. Kosky, P.E.  
President

KFK/dmpm

Enclosure

cc: Robert I. Taylor, Central Florida Power, L.P.  
Robert Chatham, Destec Engineering, Inc.  
Mirza Baig, FDER  
File (2)

*C. Holladay*

*B. Thomas, SW Dist.*

*G. Harper, EPA*

*B. Mitchell, NPS*

Table 3-1. Net Increase in Emissions Due To the Central Florida Cogeneration Facility Compared to the PSD Significant Emission Rates (REVISED)

Pollutant	Emissions (TPY)				Significant Emission Rate	PSD Review
	Potential Emissions From Proposed Facility <sup>a</sup>					
	Permit Application		Revised			
Sulfur Dioxide <sup>b</sup>	33.1	(GE)	33.1	(GE)	40	No
Particulate Matter (TSP)	45.0	(GE)	45.0	(GE)	25	Yes
Particulate Matter (PM10)	45.0	(GE)	45.0	(GE)	15	Yes
Nitrogen Dioxide	702.1	(GE)	702.1	(GE)	40	Yes
Carbon Monoxide	243.1	(GE)	243.1	(GE)	100	Yes
Volatile Organic Compounds	45.3	(W)	45.6	(W)	40	Yes
Lead	0.00219	(GE)	0.00219	(GE)	0.6	No
Sulfuric Acid Mist	4.2	(GE)	4.2	(GE)	7	No
Total Fluorides	0.00802	(GE)	0.00802	(GE)	3	No
Total Reduced Sulfur	NEG		NEG		10	No
Reduced Sulfur Compounds	NEG		NEG		10	No
Hydrogen Sulfide	NEG		NEG		10	No
Asbestos	NEG		NEG		0.007	No
Beryllium	0.000616	(GE)	0.000616	(GE)	0.0004	Yes
Mercury	0.000739	(GE)	0.000739	(GE)	0.1	No
Vinyl Chloride	NEG		NEG		1	No
Benzene	NEG		NEG		0	No
Radionuclides	NEG		NEG		0	No
Inorganic Arsenic	0.00104	(GE)	0.00104	(GE)	0	Yes

Note: GE = General Electric.

NEG = Negligible.

W = Westinghouse.

All calculations based on 72°F base load condition.

<sup>a</sup> Maximum annual emissions based on the gas turbine firing distillate oil and natural gas for 300 and 8,460 hours, respectively, and duct burner firing natural gas for 8,760 hours. Tables A-15 through A-18 present emissions for the GE machine while Tables A-33 through A-36 present emissions for the Westinghouse machine.

<sup>b</sup> Based on a maximum sulfur content specification of 0.05 percent in fuel oil.



Table 1. Difference in Maximum Emissions for Criteria Pollutants for Tiger Bay Cogeneration Facility-  
Westinghouse 501F, Base Load, Permit Application Compared to Revised Values

Pollutant	Gas Turbine- Distillate Oil			Gas Turbine- Natural Gas			Duct Burner- Natural Gas			Maximum Emissions		
	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Hours of Operation	300			8460			8760					
Particulate:												
lb/hr	-9.00E-01	-1.00E-01	0.00E+00	2.00E-01	1.00E-01	1.00E-01	0.00E+00	0.00E+00	0.00E+00	-9.00E-01	-1.00E-01	0.00E+00
TPY	-1.35E-01	-1.50E-02	0.00E+00	8.46E-01	4.23E-01	4.23E-01	0.00E+00	0.00E+00	0.00E+00	7.11E-01	4.08E-01	4.23E-01
Sulfur Dioxide:												
lb/hr	-1.70E+00	-7.94E-01	-6.95E-01	3.93E-02	3.78E-02	3.64E-02	0.00E+00	0.00E+00	0.00E+00	-1.70E+00	-7.94E-01	-6.95E-01
TPY	-2.55E-01	-1.19E-01	-1.04E-01	1.66E-01	1.60E-01	1.54E-01	0.00E+00	0.00E+00	0.00E+00	-8.86E-02	4.06E-02	4.95E-02
Nitrogen Oxides:												
lb/hr	-7.98E-01	4.82E+00	4.27E+00	-6.21E+00	2.49E+00	2.69E+00	0.00E+00	0.00E+00	0.00E+00	-7.98E-01	4.82E+00	4.27E+00
TPY	-1.20E-01	7.22E-01	6.40E-01	-2.63E+01	1.05E+01	1.14E+01	0.00E+00	0.00E+00	0.00E+00	-2.64E+01	1.13E+01	1.20E+01
Carbon Monoxide:												
lb/hr	-2.58E+00	1.36E+00	1.67E+00	1.27E+00	2.70E-01	2.65E-01	0.00E+00	0.00E+00	0.00E+00	-2.58E+00	1.36E+00	1.67E+00
TPY	-3.87E-01	2.05E-01	2.51E-01	5.37E+00	1.14E+00	1.12E+00	0.00E+00	0.00E+00	0.00E+00	4.98E+00	1.34E+00	1.37E+00
VOCs (as methane):												
lb/hr	-1.21E-01	1.59E-01	1.62E-01	6.16E-02	6.13E-02	6.39E-02	0.00E+00	0.00E+00	0.00E+00	-1.21E-01	1.59E-01	1.62E-01
TPY	-1.82E-02	2.38E-02	2.43E-02	2.61E-01	2.59E-01	2.70E-01	0.00E+00	0.00E+00	0.00E+00	2.43E-01	2.83E-01	2.94E-01
Lead:												
lb/hr	4.54E-06	1.37E-04	1.37E-04	NA	NA	NA	NA	NA	NA	4.54E-06	1.37E-04	1.37E-04
TPY	6.81E-07	2.06E-05	2.05E-05	NA	NA	NA	NA	NA	NA	6.81E-07	2.06E-05	2.05E-05

Note: NA = not applicable

Table 2. Difference in Maximum Emissions of Other Regulated Pollutants for Tiger Bay Cogeneration Facility  
Westinghouse 501F, Base Load, Permit Application Compared to Revised Values

Pollutant		Gas Turbine- Distillate Oil			Gas Turbine- Natural Gas			Duct Burner- Natural Gas			Maximum Emissions		
		27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Arsenic	lb/hr	2.14E-06	6.47E-05	6.44E-05	NA	NA	NA	NA	NA	NA	2.14E-06	6.47E-05	6.44E-05
	TPY	3.21E-07	9.71E-06	9.67E-06	NA	NA	NA	NA	NA	NA	3.21E-07	9.71E-06	9.67E-06
Beryllium	lb/hr	1.27E-06	3.85E-05	3.84E-05	NA	NA	NA	NA	NA	NA	1.27E-06	3.85E-05	3.84E-05
	TPY	1.91E-07	5.78E-06	5.75E-06	NA	NA	NA	NA	NA	NA	1.91E-07	5.78E-06	5.75E-06
Mercury	lb/hr	1.53E-06	4.62E-05	4.60E-05	NA	NA	NA	NA	NA	NA	1.53E-06	4.62E-05	4.60E-05
	TPY	2.29E-07	6.94E-06	6.91E-06	NA	NA	NA	NA	NA	NA	2.29E-07	6.94E-06	6.91E-06
Fluoride	lb/hr	1.66E-05	5.01E-04	4.99E-04	NA	NA	NA	NA	NA	NA	1.66E-05	5.01E-04	4.99E-04
	TPY	2.49E-06	7.52E-05	7.49E-05	NA	NA	NA	NA	NA	NA	2.49E-06	7.52E-05	7.49E-05
Sulfuric Acid Mist	lb/hr	-2.08E-01	-9.73E-02	-8.52E-02	5.07E-03	4.87E-03	4.69E-03	0.00E+00	0.00E+00	0.00E+00	-2.08E-01	-9.73E-02	-8.52E-02
	TPY	-3.12E-02	-1.46E-02	-1.28E-02	2.14E-02	2.06E-02	1.98E-02	0.00E+00	0.00E+00	0.00E+00	-9.78E-03	6.01E-03	7.06E-03

Note: NA = not applicable

Table 3. Difference in Maximum Emissions of Non-Regulated Pollutants for Tiger Bay Cogeneration Facility-  
Westinghouse 501F, Base Load, Permit Application Compared to Revised Values

Pollutant	Gas Turbine- Distillate Oil			Gas Turbine- Natural Gas			Duct Burner- Natural Gas			Maximum Emissions		
	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Manganese												
lb/hr	7.14E-06	2.16E-04	2.15E-04	NA	NA	NA	NA	NA	NA	7.14E-06	2.16E-04	2.15E-04
TPY	1.07E-06	3.24E-05	3.22E-05	NA	NA	NA	NA	NA	NA	1.07E-06	3.24E-05	3.22E-05
Nickel												
lb/hr	8.67E-05	2.62E-03	2.61E-03	NA	NA	NA	NA	NA	NA	8.67E-05	2.62E-03	2.61E-03
TPY	1.30E-05	3.93E-04	3.91E-04	NA	NA	NA	NA	NA	NA	1.30E-05	3.93E-04	3.91E-04
Cadmium												
lb/hr	5.35E-06	1.62E-04	1.61E-04	NA	NA	NA	NA	NA	NA	5.35E-06	1.62E-04	1.61E-04
TPY	8.03E-07	2.43E-05	2.42E-05	NA	NA	NA	NA	NA	NA	8.03E-07	2.43E-05	2.42E-05
Chromium												
lb/hr	2.42E-05	7.32E-04	7.29E-04	NA	NA	NA	NA	NA	NA	2.42E-05	7.32E-04	7.29E-04
TPY	3.63E-06	1.10E-04	1.09E-04	NA	NA	NA	NA	NA	NA	3.63E-06	1.10E-04	1.09E-04
Copper												
lb/hr	1.43E-04	4.32E-03	4.30E-03	NA	NA	NA	NA	NA	NA	1.43E-04	4.32E-03	4.30E-03
TPY	2.14E-05	6.47E-04	6.44E-04	NA	NA	NA	NA	NA	NA	2.14E-05	6.47E-04	6.44E-04
Vanadium												
lb/hr	3.54E-05	1.07E-03	1.07E-03	NA	NA	NA	NA	NA	NA	3.54E-05	1.07E-03	1.07E-03
TPY	5.32E-06	1.61E-04	1.60E-04	NA	NA	NA	NA	NA	NA	5.32E-06	1.61E-04	1.60E-04
Selenium												
lb/hr	1.19E-05	3.61E-04	3.59E-04	NA	NA	NA	NA	NA	NA	1.19E-05	3.61E-04	3.59E-04
TPY	1.79E-06	5.41E-05	5.39E-05	NA	NA	NA	NA	NA	NA	1.79E-06	5.41E-05	5.39E-05
Polycyclic Organic Matter												
lb/hr	1.42E-07	4.28E-06	4.27E-06	1.45E-05	1.40E-05	1.35E-05	0.00E+00	0.00E+00	0.00E+00	1.45E-05	1.40E-05	1.35E-05
TPY	2.13E-08	6.43E-07	6.40E-07	6.15E-05	5.91E-05	5.69E-05	0.00E+00	0.00E+00	0.00E+00	6.15E-05	5.98E-05	5.76E-05
Formaldehyde												
lb/hr	2.07E-04	6.24E-03	6.21E-03	1.15E-03	1.11E-03	1.07E-03	0.00E+00	0.00E+00	0.00E+00	2.07E-04	6.24E-03	6.21E-03
TPY	3.10E-05	9.36E-04	9.32E-04	4.87E-03	4.68E-03	4.51E-03	0.00E+00	0.00E+00	0.00E+00	4.90E-03	5.62E-03	5.44E-03

Note: NA = not applicable

Table 4. Difference in Maximum Emissions for Additional Non-Regulated Pollutant for Tiger Bay Cogeneration Facility-  
Westinghouse 501F, Base Load, Permit Application Compared to Revised Values

Pollutant		Gas Turbine- Distillate Oil			Gas Turbine- Natural Gas			Duct Burner- Natural Gas			Maximum Emissions		
		27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Antimony	lb/hr	1.11E-05	3.37E-04	3.35E-04	NA	NA	NA	NA	NA	NA	1.11E-05	3.37E-04	3.35E-04
	TPY	1.67E-06	5.05E-05	5.03E-05	NA	NA	NA	NA	NA	NA	1.67E-06	5.05E-05	5.03E-05
Barium	lb/hr	9.95E-06	3.01E-04	3.00E-04	NA	NA	NA	NA	NA	NA	9.95E-06	3.01E-04	3.00E-04
	TPY	1.49E-06	4.51E-05	4.49E-05	NA	NA	NA	NA	NA	NA	1.49E-06	4.51E-05	4.49E-05
Cobalt	lb/hr	4.62E-06	1.40E-04	1.39E-04	NA	NA	NA	NA	NA	NA	4.62E-06	1.40E-04	1.39E-04
	TPY	6.93E-07	2.10E-05	2.09E-05	NA	NA	NA	NA	NA	NA	6.93E-07	2.10E-05	2.09E-05
Zinc	lb/hr	3.48E-04	1.05E-02	1.05E-02	NA	NA	NA	NA	NA	NA	3.48E-04	1.05E-02	1.05E-02
	TPY	5.23E-05	1.58E-03	1.57E-03	NA	NA	NA	NA	NA	NA	5.23E-05	1.58E-03	1.57E-03
Chlorine	lb/hr	-8.22E-04	-3.88E-04	-3.36E-04	NA	NA	NA	NA	NA	NA	-8.22E-04	-3.88E-04	-3.36E-04
	TPY	-1.23E-04	-5.81E-05	-5.04E-05	NA	NA	NA	NA	NA	NA	-1.23E-04	-5.81E-05	-5.04E-05

W501DIFF  
9/03/92

Table 5. Percent Change in Maximum Emissions for Criteria Pollutants for Tiger Bay Cogeneration Facility-  
Westinghouse 501F, Base Load, Permit Application Compared to Revised Values

Pollutant	Gas Turbine- Distillate Oil			Gas Turbine- Natural Gas			Duct Burner- Natural Gas			Maximum Emissions		
	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Hours of Operation	300			8460			8760					
Particulate:												
lb/hr	-2.23%	-0.26%	0.00%	3.12%	1.69%	1.79%	0.00%	0.00%	0.00%	-2.17%	-0.25%	0.00%
TPY	-2.23%	-0.26%	0.00%	3.13%	1.69%	1.79%	0.00%	0.00%	0.00%	1.90%	1.16%	1.26%
Sulfur Dioxide:												
lb/hr	-1.87%	-0.91%	-0.85%	0.82%	0.88%	0.91%	0.00%	0.00%	0.00%	-1.86%	-0.91%	-0.84%
TPY	-1.87%	-0.91%	-0.85%	0.82%	0.88%	0.91%	0.00%	0.00%	0.00%	-0.25%	0.13%	0.16%
Nitrogen Oxides:												
lb/hr	-0.27%	1.81%	1.72%	-3.67%	1.75%	2.02%	0.00%	0.00%	0.00%	-0.27%	1.74%	1.65%
TPY	-0.27%	1.81%	1.72%	-3.67%	1.75%	2.02%	0.00%	0.00%	0.00%	-3.29%	1.64%	1.87%
Carbon Monoxide:												
lb/hr	-1.58%	0.87%	1.14%	3.79%	0.87%	0.92%	0.00%	0.00%	0.00%	-1.49%	0.82%	1.07%
TPY	-1.58%	0.87%	1.14%	3.79%	0.87%	0.92%	0.00%	0.00%	0.00%	2.37%	0.68%	0.73%
VOCs (as methane):												
lb/hr	-0.64%	0.87%	0.94%	0.77%	0.87%	0.92%	0.00%	0.00%	0.00%	-0.56%	0.75%	0.81%
TPY	-0.64%	0.87%	0.94%	0.77%	0.87%	0.92%	0.00%	0.00%	0.00%	0.49%	0.63%	0.66%
Lead:												
lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%

Note: NA = not applicable

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9/03/92

Table 6. Percent Change in Maximum Emissions of Other Regulated Pollutants for Tiger Bay Cogeneration Facility  
Westinghouse 501F, Base Load, Permit Application Compared to Revised Values

Pollutant		Gas Turbine- Distillate Oil			Gas Turbine- Natural Gas			Duct Burner- Natural Gas			Maximum Emissions		
		27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Arsenic	lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
	TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Beryllium	lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
	TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Mercury	lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
	TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Fluoride	lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
	TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Sulfuric Acid Mist	lb/hr	-1.87%	-0.91%	-0.85%	0.82%	0.88%	0.91%	0.00%	0.00%	0.00%	-1.86%	-0.91%	-0.84%
	TPY	-1.87%	-0.91%	-0.85%	0.82%	0.88%	0.91%	0.00%	0.00%	0.00%	-0.22%	0.15%	0.18%

Note: NA = not applicable

Table 7. Percent Change in Maximum Emissions of Non-Regulated Pollutants for Tiger Bay Cogeneration Facility-  
Westinghouse 501F, Base Load, Permit Application Compared to Revised Values

Pollutant	Gas Turbine- Distillate Oil			Gas Turbine- Natural Gas			Duct Burner- Natural Gas			Maximum Emissions		
	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Manganese												
lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Nickel												
lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Cadmium												
lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Chromium												
lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Copper												
lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Vanadium												
lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Selenium												
lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Polycyclic Organic Matter												
lb/hr	0.03%	1.00%	1.07%	0.82%	0.88%	0.91%	0.00%	0.00%	0.00%	0.77%	0.83%	0.85%
TPY	0.03%	1.00%	1.07%	0.82%	0.88%	0.91%	0.00%	0.00%	0.00%	0.76%	0.83%	0.85%
Formaldehyde												
lb/hr	0.03%	1.00%	1.07%	0.82%	0.88%	0.91%	0.00%	0.00%	0.00%	0.03%	0.99%	1.05%
TPY	0.03%	1.00%	1.07%	0.82%	0.88%	0.91%	0.00%	0.00%	0.00%	0.67%	0.85%	0.88%

Note: NA = not applicable

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Table 8. Percent Change in Maximum Emissions for Additional Non-Regulated Pollutant for DESTEC Central Florida Cogeneration Facility-  
Westinghouse 501F, Base Load, Permit Application Compared to Revised Values

Pollutant	Gas Turbine- Distillate Oil			Gas Turbine- Natural Gas			Duct Burner- Natural Gas			Maximum Emissions			
	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	
Antimony	lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
	TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Barium	lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
	TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Cobalt	lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
	TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Zinc	lb/hr	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
	TPY	0.03%	1.00%	1.07%	NA	NA	NA	NA	NA	NA	0.03%	1.00%	1.07%
Chlorine	lb/hr	-1.87%	-0.91%	-0.85%	NA	NA	NA	NA	NA	NA	-1.87%	-0.91%	-0.85%
	TPY	-1.87%	-0.91%	-0.85%	NA	NA	NA	NA	NA	NA	-1.87%	-0.91%	-0.85%



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Table 9. Comparison of Maximum Emissions for Criteria Pollutants for Tiger Bay Cogeneration Facility-  
Permit Application for GE and Westinghouse Turbines and Revised Westinghouse Data, Base Load

Pollutant	Permit Application GE PG7221(FA)			Permit Application Westinghouse 501F			Revised Data Westinghouse 501F		
	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
<b>Particulate:</b>									
lb/hr	18.00	18.00	18.00	41.40	40.10	37.70	40.50	40.00	37.70
TPY	45.00	45.00	45.00	37.51	35.20	33.57	38.22	35.61	34.00
<b>Sulfur Dioxide:</b>									
lb/hr	100.02	88.87	82.11	91.35	87.31	82.32	89.65	86.52	81.63
TPY	36.82	33.05	30.74	35.24	32.46	30.52	35.15	32.50	30.57
<b>Nitrogen Oxides:</b>									
lb/hr	336.22	300.19	278.04	300.93	276.05	258.65	300.13	280.87	262.92
TPY	777.46	702.11	655.15	802.48	685.75	644.03	776.09	697.01	656.07
<b>Carbon Monoxide:</b>									
lb/hr	108.41	98.62	93.20	173.49	167.04	156.99	170.91	168.40	158.66
TPY	265.12	243.12	230.91	209.97	198.55	187.82	214.95	199.90	189.19
<b>VOCs (as methane):</b>									
lb/hr	10.40	9.48	9.40	21.76	21.18	20.06	21.64	21.34	20.22
TPY	25.63	24.46	23.66	49.53	45.29	44.66	49.77	45.57	44.95
<b>Lead:</b>									
lb/hr	1.65E-02	1.46E-02	1.35E-02	1.42E-02	1.37E-02	1.28E-02	1.42E-02	1.38E-02	1.29E-02
TPY	2.47E-03	2.19E-03	2.03E-03	2.13E-03	2.05E-03	1.91E-03	2.13E-03	2.07E-03	1.94E-03

Note: Based on firing natural gas and distillate oil for 8470 and 300 hours, respectively.  
Total emissions include emissions from the combustion turbine and duct burner.

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Table 10. Comparison of Maximum Emissions of Other Regulated Pollutants for Tiger Bay Cogeneration Facility-  
Permit Application for GE and Westinghouse Turbines and Revised Westinghouse Data, Base Load

Pollutant		Maximum Emissions			Maximum Emissions			Maximum Emissions		
		27 of	72 of	97 of	27 of	72 of	97 of	27 of	72 of	97 of
Arsenic	lb/hr	7.77E-03	6.90E-03	6.37E-03	6.70E-03	6.45E-03	6.02E-03	6.70E-03	6.52E-03	6.09E-03
	TPY	1.17E-03	1.04E-03	9.56E-04	1.01E-03	9.68E-04	9.04E-04	1.01E-03	9.78E-04	9.13E-04
Beryllium	lb/hr	4.62E-03	4.11E-03	3.79E-03	3.99E-03	3.84E-03	3.59E-03	3.99E-03	3.88E-03	3.62E-03
	TPY	6.94E-04	6.16E-04	5.69E-04	5.98E-04	5.76E-04	5.38E-04	5.98E-04	5.82E-04	5.44E-04
Mercury	lb/hr	5.55E-03	4.93E-03	4.55E-03	4.79E-03	4.61E-03	4.30E-03	4.79E-03	4.66E-03	4.35E-03
	TPY	8.32E-04	7.39E-04	6.83E-04	7.18E-04	6.91E-04	6.45E-04	7.18E-04	6.98E-04	6.52E-04
Fluoride	lb/hr	6.02E-02	5.35E-02	4.94E-02	5.19E-02	5.00E-02	4.67E-02	5.19E-02	5.05E-02	4.72E-02
	TPY	9.03E-03	8.02E-03	7.41E-03	7.79E-03	7.50E-03	7.00E-03	7.79E-03	7.57E-03	7.08E-03
Sulfuric Acid Mist	lb/hr	1.23E+01	1.09E+01	1.01E+01	1.12E+01	1.07E+01	1.01E+01	1.10E+01	1.06E+01	1.00E+01
	TPY	4.65E+00	4.18E+00	3.89E+00	4.46E+00	4.10E+00	3.86E+00	4.45E+00	4.11E+00	3.86E+00

Note: Based on firing natural gas and distillate oil for 8470 and 300 hours, respectively.  
Total emissions include emissions from the combustion turbine and duct burner.

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Table 11. Comparison of Maximum Emissions of Non-Regulated Pollutants for Tiger Bay Cogeneration Facility-  
Permit Application for GE and Westinghouse Turbines and Revised Westinghouse Data, Base Load

Pollutant	Maximum Emissions			Maximum Emissions			Maximum Emissions		
	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Manganese									
lb/hr	2.59E-02	2.30E-02	2.12E-02	2.23E-02	2.15E-02	2.01E-02	2.23E-02	2.17E-02	2.03E-02
TPY	3.88E-03	3.45E-03	3.19E-03	3.35E-03	3.23E-03	3.01E-03	3.35E-03	3.26E-03	3.04E-03
Nickel									
lb/hr	3.14E-01	2.79E-01	2.58E-01	2.71E-01	2.61E-01	2.44E-01	2.71E-01	2.64E-01	2.46E-01
TPY	4.72E-02	4.19E-02	3.87E-02	4.07E-02	3.92E-02	3.66E-02	4.07E-02	3.96E-02	3.70E-02
Cadmium									
lb/hr	1.94E-02	1.73E-02	1.59E-02	1.68E-02	1.61E-02	1.51E-02	1.68E-02	1.63E-02	1.52E-02
TPY	2.91E-03	2.59E-03	2.35E-03	2.51E-03	2.42E-03	2.26E-03	2.51E-03	2.44E-03	2.28E-03
Chromium									
lb/hr	8.79E-02	7.80E-02	7.21E-02	7.58E-02	7.30E-02	6.81E-02	7.58E-02	7.37E-02	6.89E-02
TPY	1.32E-02	1.17E-02	1.08E-02	1.14E-02	1.09E-02	1.02E-02	1.14E-02	1.11E-02	1.03E-02
Copper									
lb/hr	5.18E-01	4.60E-01	4.25E-01	4.47E-01	4.30E-01	4.02E-01	4.47E-01	4.35E-01	4.06E-01
TPY	7.77E-02	6.90E-02	6.37E-02	6.70E-02	6.45E-02	6.02E-02	6.70E-02	6.52E-02	6.09E-02
Vanadium									
lb/hr	1.29E-01	1.14E-01	1.05E-01	1.11E-01	1.07E-01	9.97E-02	1.11E-01	1.08E-01	1.01E-01
TPY	1.93E-02	1.71E-02	1.58E-02	1.66E-02	1.60E-02	1.50E-02	1.66E-02	1.62E-02	1.51E-02
Selenium									
lb/hr	4.33E-02	3.85E-02	3.55E-02	3.74E-02	3.60E-02	3.36E-02	3.74E-02	3.63E-02	3.40E-02
TPY	6.50E-03	5.77E-03	5.33E-03	5.60E-03	5.40E-03	5.04E-03	5.61E-03	5.45E-03	5.09E-03
Polycyclic Organic Matter									
lb/hr	1.91E-03	1.73E-03	1.61E-03	1.88E-03	1.69E-03	1.59E-03	1.90E-03	1.71E-03	1.60E-03
TPY	8.17E-03	7.38E-03	6.90E-03	8.05E-03	7.25E-03	6.80E-03	8.11E-03	7.31E-03	6.86E-03
Formaldehyde									
lb/hr	7.58E-01	6.74E-01	6.23E-01	6.55E-01	6.31E-01	5.90E-01	6.55E-01	6.37E-01	5.96E-01
TPY	7.53E-01	6.79E-01	6.33E-01	7.29E-01	6.62E-01	6.21E-01	7.34E-01	6.68E-01	6.26E-01

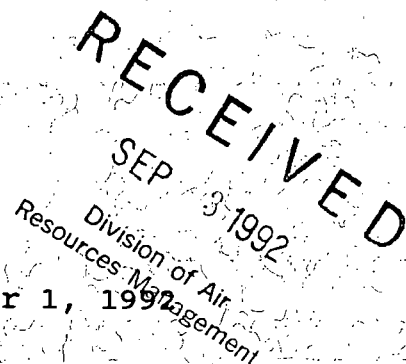
Note: Based on firing natural gas and distillate oil for 8470 and 300 hours, respectively.  
Total emissions include emissions from the combustion turbine and duct burner.

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9/03/92

Table 12. Comparison of Maximum Emissions for Additional Non-Regulated Pollutant for Tiger Bay Facility-  
Permit Application for GE and Westinghouse Turbines and Revised Westinghouse Data, Base Load

Pollutant		Maximum Emissions			Maximum Emissions			Maximum Emissions		
		27 oF	72 oF	97 oF	27 oF	72 oF	97 oF	27 oF	72 oF	97 oF
Antimony	lb/hr	4.04E-02	3.59E-02	3.32E-02	3.49E-02	3.36E-02	3.13E-02	3.49E-02	3.39E-02	3.17E-02
	TPY	6.06E-03	5.38E-03	4.97E-03	5.23E-03	5.03E-03	4.70E-03	5.23E-03	5.09E-03	4.75E-03
Barium	lb/hr	3.61E-02	3.21E-02	2.96E-02	3.11E-02	3.00E-02	2.80E-02	3.12E-02	3.03E-02	2.83E-02
	TPY	5.42E-03	4.81E-03	4.44E-03	4.67E-03	4.50E-03	4.20E-03	4.67E-03	4.54E-03	4.25E-03
Cobalt	lb/hr	1.68E-02	1.49E-02	1.38E-02	1.45E-02	1.39E-02	1.30E-02	1.45E-02	1.41E-02	1.31E-02
	TPY	2.51E-03	2.23E-03	2.06E-03	2.17E-03	2.09E-03	1.95E-03	2.17E-03	2.11E-03	1.97E-03
Zinc	lb/hr	1.26E+00	1.12E+00	1.04E+00	1.09E+00	1.05E+00	9.80E-01	1.09E+00	1.06E+00	9.91E-01
	TPY	1.90E-01	1.68E-01	1.56E-01	1.64E-01	1.57E-01	1.47E-01	1.64E-01	1.59E-01	1.49E-01
Chlorine	lb/hr	4.99E-02	4.43E-02	4.09E-02	4.41E-02	4.24E-02	3.96E-02	4.32E-02	4.21E-02	3.93E-02
	TPY	7.48E-03	6.64E-03	6.14E-03	6.61E-03	6.37E-03	5.94E-03	6.49E-03	6.31E-03	5.89E-03

Note: Based on firing natural gas and distillate oil for 8470 and 300 hours, respectively.  
Total emissions include emissions from the combustion turbine and duct burner.



September 1.

SUBJECT: CORRECTION TO COMMENTS SUBMITTED ON AUBURNDALE  
POWER PARTNERS DRAFT PSD PERMIT

I am writing to inform you of a correction to our comments submitted on August 25, 1992. Specifically, please ignore comment number nine regarding CO emission rates. CO emission rate of 21 ppmvd is correctly stated in the draft permit for part load condition only.

Thank you for your attention to this matter.

Sincerely,

**[703] 222-0445**

**Patricia Haslach**  
Environmental Manager  
Eastern Region

*Handwritten:*  
C. J. [unclear]  
[unclear] [unclear] [unclear]  
A. Rapp, EPA  
B. M. [unclear]



RECEIVED

AUG 26 1992

Bureau of  
Air Regulation

August 25, 1992

D.E.R.

AUG 31 1992

SOUTHWEST DISTRICT  
TAMPA

Mr. Preston Lewis  
Bureau of Air Regulation  
Florida Department of Environmental Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

SUBJECT: COMMENTS ON AUBURNDALE POWER PARTNERS  
DRAFT PSD PERMIT

Dear Mr. Lewis:

Our project team has reviewed the draft permit to construct for our Auburndale Power Partner project, and have some comments we would like you to incorporate in the final permit if possible. The majority of the comments are minor in nature, however, we are requesting one change in emission rate of a non-criteria pollutant (sulfuric acid mist) due to a revision in the emission rate our turbine vendor provided us after the draft permit was issued.

I have recently spoken with Teresa Heron about this issue, and she informed me that this change would require your review, but that it should not pose any problems since we have not advertised for public notice yet.

I will be following up these comments with a phone call to you to see if any of these comments are of major concern. In the mean time, please feel free to call me if you have any questions on the comments submitted.

Sincerely,

*Patricia A. Haslach*  
Patricia A. Haslach  
Environmental Manager,  
Eastern Region

12500 FAIR LAKES CIRCLE  
SUITE 420

FAIRFAX, VIRGINIA  
22033

[703] 222-0445  
FAX: [703] 222-0516

Attachments

cc: J. Heron  
C. Holladay  
B. Thomas, SW Dist  
Q. Harper, EPA  
H. Harper, NPS

**AUBURNDALE POWER PARTNERS, LIMITED PARTNERSHIP  
COMMENTS ON DRAFT PSD PERMIT**

1. Intent to Issue notice refers to the project in several places as "Auburndale Power Adventures". Please change to "Auburndale Power Partners, Limited Partnership".

2. Regarding project name on Technical Evaluation and Synopsis of Application, legal project name is "Auburndale Power Partners, Limited Partnership".

3. Page 2, Synopsis of Application, III.3 Facility Category: Nitrogen Oxides tons/year value should be changed to 573.8 tons per year from 509 tons/year. 573.8 tons/year reflects continuous operation at 130 lb/hr, consistent with the value given in Table 1 of the permit.

4. Page 2, Synopsis of Application, III.3 Facility Category: The second sentence says that "The proposed 156 MW combined cycle system will increase this facilities emissions by.... Since this is a new facility, there is no increase in emissions. The write-up should be revised to correct this matter.

5. Table 1 - Allowable Emission Rates: NOx annual emission for natural gas, 25 ppm case should be revised from 509 TPY to 573.8 TPY as indicated in #3 above.

6. Table 1 - Allowable Emission Rates: H2SO4 emissions: Auburndale Power Partners is requesting a change in allowable emission rates from 5.1 lb/hr on gas and 8.9 lb/hr on oil to 7.5 lb/hr on gas and 14 lb/hr on oil. This increase in emission rates is requested due to information recently presented by our turbine vendor, Westinghouse, indicating that additional H2SO4 emissions may occur due to reaction of SO3 as exhaust gas passes through the HRSG and ductwork and contacts moisture to form additional H2SO4. The emission rates originally provided, and currently stated in the draft permit, are based on H2SO4 emissions from engine exhaust only.

Review of the Air Toxics Impacts modeling in our PSD application shows that the increased H2SO4 emission rates are well below those modeled in our application (since the application was based on 0.2% sulfur fuel oil). As a result, the requested H2SO4 emission rates will result in impacts well below the "No-Threat Level" as indicated in Table 6-12 of our PSD application (page 6-20).

7. Table 1 - Allowable Emission Rates: please footnote allowable opacity of 10% as footnote (D) with the following explanation "full load condition". Per specific condition #2, 20% opacity is allowable up to full load conditions.

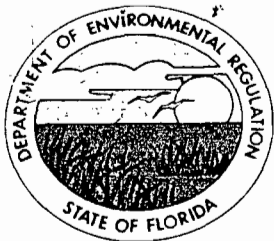
8. Table 1 - Allowable Emission Rates: For non-criteria pollutants As, F, Be, Pb, units on first emission rates should be added, i.e. lb/MMBtu should follow first set of numbers.

9. Table 1 - Allowable Emission Rates: Footnote (C). Footnote C needs to be revised to reflect the fact that with the new combustor to be installed by 9/30/97, CO emission rates at full load will not exceed 21 ppmvd. 15 ppmvd is not to exceed CO level for combustor used until 9/30/97 only.

10. Page 6 of 10 of draft permit, specific conditions 6a and 6b: please indicated heat input values as LHV.

11. Page 8 of 10 of draft permit, specific condition #18: this condition should be revised to indicate that the "steam to fuel ratio at which compliance is achieved shall be incorporated into the permit..."





## Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

August 6, 1992

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Ms. Patricia A. Haslach  
Environmental Manager  
Auburndale Power Partners  
12500 Fair Lakes Circle, Suite 420  
Fairfax, Virginia 22033

Dear Ms. Haslach:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit to construct a 156 MW combined cycle system facility.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Preston Lewis of the Bureau of Air Regulation.

Sincerely,

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

CHF/TH/plm

Attachments

c: Thomas W. Davis, P.E.  
Bill Thomas, SWD  
Jewell Harper, USEPA  
Chris Shaver, NPS

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION

CERTIFIED MAIL

In the Matter of an  
Application for Permit by:

DER File No. AC 53-208321  
PSD-FL-185  
Polk County

Auburndale Power Adventures,  
Limited Partnership  
County Road 544-A (Derby Avenue)  
Auburndale, Florida 33823

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INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Auburndale Power Adventures, applied on February 2, 1992, to the Department of Environmental Regulation for a permit to construct a 156 MW combined cycle system facility. The facility is located in Auburndale, Polk County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes and Florida Administrative Code (F.A.C.) Chapters 17-2 and 17-4. The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed work.

Pursuant to Section 403.815, Florida Statutes and Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "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. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 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.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

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 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, Florida Statutes.

The Petition shall contain the following information;

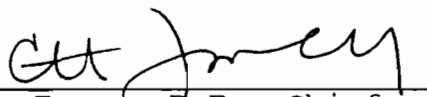
- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) 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 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, F.A.C.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION

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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 8-6-92 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 8-6-92  
Date

Copies furnished to:

Thomas W. Davis, P.E.  
Bill Thomas, SWD  
Jewell Harper, USEPA  
Chris Shaver, NPS

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL REGULATION  
NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a PSD permit to Auburndale Power Adventures, Limited Partnership, County Road 544-A (Derby Avenue), Auburndale, Polk County, Florida, to construct a 156 MW combined cycle system facility. A determination of Best Available Control Technology (BACT) was required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

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, within 14 days of publication of this notice. 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 Notice. 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 30 days of publication 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.

The application 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 Regulation  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Department of Environmental Regulation  
Southwest District  
4520 Oak Fair Blvd.  
Tampa, Florida 33610-7347

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. 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.

Technical Evaluation  
and  
Preliminary Determination

Auburndale Power Partners  
Auburndale, Polk County, Florida

156 MW Combined Cycle System

Permit Number: AC 53-208321  
PSD-FL-185

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

August 6, 1992

## SYNOPSIS OF APPLICATION

### I. NAME AND ADDRESS OF APPLICANT

Auburndale Power Partners  
12500 Fair Lakes Circle, Suite 420  
Fairfax, Virginia 22033

### II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: February 2, 1992

Completeness Review: Department letter dated March 10, 1992.

Response to Incompleteness Letters: Company letters received on April 28, May 19, June 18, and July 8, 1992.

Application Completeness Date: May 19, 1992.

### III. FACILITY INFORMATION

#### III.1 Facility Location

This facility is located on County Road 544-A (Derby Avenue) in Auburndale, Polk County, Florida. The UTM coordinates are Zone 17, 420.8 km East and 3103 km North.

#### III.2 Facility Identification Code (SIC)

Major Group No. 49 - Electric, Gas and Sanitary Services.

Industry Group No. 491 - Combination Electric, Gas and Other Utility Services.

Industry Group No. 4911 - Electric and Other Services Combined.

#### III.3 Facility Category

Auburndale Power Partners proposed project in Auburndale is classified as a major emitting facility. The proposed 156 MW (megawatt) combined cycle system will increase this facility's emissions by approximately 509 tons per year (TPY) of nitrogen oxides ( $\text{NO}_x$ ); 175 TPY of sulfur dioxide ( $\text{SO}_2$ ); 191 TPY of carbon monoxide (CO); 46 TPY of particulate matter (PM); 27 TPY of volatile organic compounds (VOC); 0.014 TPY of beryllium; 0.51 TPY of lead; 0.060 TPY of mercury; and 23 TPY of sulfuric acid mist if operated at 8,360 hours per year on gas and 400 hours per year on fuel oil with a maximum of 0.05 percent sulfur(s) by weight.



#### IV. PROJECT DESCRIPTION

Auburndale Power Partners proposes to operate a combined cycle system consisting of one 104 MW combustion turbine (CT), Westinghouse 501D, one 52 MW steam turbine (ST), and one unfired heat recovery steam generator (HRSG) and ancillary equipment. This total system is rated at 156 MW output nominal capacity. Natural gas will be the primary fuel for the cogeneration facility over its lifetime. A long-term contract for natural gas has been obtained, and a pipeline to the site is scheduled to be completed by December 1, 1994. No. 2 distillate fuel oil (0.05% S by weight) will be the backup fuel. Fuel oil will be delivered to the site by truck and stored on site in two 600,000 gallon storage tanks. Pending the completion of the natural gas pipeline, fuel oil may be used continuously during the facility's first 18 months of operation. Fuel oil will be used for a maximum of 400 hours per year thereafter. The CT will be served by a single HRSG, exhausting to an individual stack. There will be no bypass stacks on the CT for simple cycle operation.

#### V. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code (F.A.C.), and 40 CFR (July, 1990 version).

The plant is located in an area designated attainment for all criteria pollutants in accordance with F.A.C. Rule 17-2.420.

The proposed project will be reviewed under F.A.C. Rule 17-2.500(5), New Source Review (NSR) for Prevention of Significant Deterioration (PSD), because it will be a major modification to a major facility. This review consists of a determination of Best Available Control Technology (BACT) and unless otherwise exempted, an analysis of the air quality impact of the increased emissions. The review also includes an analysis of the project's impacts on soils, vegetation and visibility; along with air quality impacts resulting from associated commercial, residential and industrial growth.

The proposed source shall be in compliance with all applicable provisions of F.A.C. Chapters 17-2 and 17-4 and the 40 CFR (July, 1991 version). The proposed source shall be in compliance with all applicable provisions of F.A.C. Rules 17-2.240: Circumvention; 17-2.250: Excess Emissions; 17-2.660: Standards of Performance for New Stationary Sources (NSPS); 17-2.700: Stationary Point Source Emission Test Procedures; and, 17-4.130: Plant Operation-Problems.

The source shall be in compliance with the New Source Performance Standards for Gas Turbines, Subpart GG, Appendix A, which is contained in 40 CFR 60, and is adopted by reference in F.A.C. Rule 17-2.660.

## VI. SOURCE IMPACT ANALYSIS

### VI.1 Emission Limitations

The operation of this combined cycle system facility burning No. 2 fuel oil and natural gas will produce emissions of NO<sub>x</sub>, SO<sub>2</sub>, CO, sulfuric acid mist, PM, As, F, Be, Pb and Hg. The impact of these pollutant emissions are below the Florida ambient air quality standards (AAQS) and/or the acceptable ambient concentration levels (AAC). Table 1 lists each contaminant and its maximum expected emission rates.

### VI.2 Air Toxics Evaluation

The operation of the sources will produce emissions of chemical compounds that may be toxic in high concentrations. The emission rates of these chemicals shall not create ambient concentrations greater than the acceptable ambient concentrations (AAC) as shown below. Determination of the AAC for these organic compounds shall be determined by Department approved dispersion modeling or ambient monitoring.

$$AAC = \frac{OEL}{\text{Safety Factor}}$$

Where,

AAC = acceptable ambient concentration

Safety Factor = 50 for category B substances and 8 hrs/day  
100 for category A substances and 8 hrs/day  
210 for category B substances and 24 hrs/day  
420 for category A substances and 24 hrs/day

OEL = Occupational exposure level such as ACGIH, ASHA and NIOSH published standards for toxic materials.

MSDS = Material Safety Data Sheets

### VI.3 Air Quality Analysis

#### a. Introduction

The operation of the proposed facility will result in emissions increases which are projected to be greater than the PSD significant emission rates for the following pollutants: NO<sub>x</sub>, SO<sub>2</sub>, PM, PM<sub>10</sub>, Be, CO, VOC, Pb, inorganic arsenic, and H<sub>2</sub>SO<sub>4</sub> mist. Therefore, the project is subject to the PSD NSR requirements contained in F.A.C. Rule 17-2.500(5) for these pollutants. Part of these requirements is an air quality impact analysis for these pollutants, which includes:

- An analysis of existing air quality;

TABLE 1 - ALLOWABLE EMISSION RATES

Pollutant	Fuel <sup>A</sup>	Allowable Emission Standard/Limitation	Basis
NO <sub>x</sub>	Gas	15 ppmvd @ 15% O <sub>2</sub> & ISO ( 78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> & ISO (131.0 lbs/hr; 509 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	5.1 lbs/hr; 22.3 TPY	BACT
	Oil	8.9 lbs/hr; 39.0 TPY	BACT
Opacity	Gas	10% opacity	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl.
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl.
As	Oil	1.61 x 10 <sup>-4</sup> (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> (0.04 lb/hr; 0.17 TPY)	Appl.
Be	Oil	2.0 x 10 <sup>-6</sup> (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> (0.13 lb/hr; 0.510 TPY)	BACT

A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil.

Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.

B) The NO<sub>x</sub> maximum limit will be lowered to 15 ppm by 9/30/97 (about 18 months after natural gas is first fired) using appropriate combustion technology improvements or SCR.

C) 21 ppmvd at minimum load.  
15 ppmvd at base load.

- A PSD increment analysis (for SO<sub>2</sub>, PM, PM<sub>10</sub>, and NO<sub>x</sub>);
- An ambient Air Quality Standards analysis (AAQS);
- An analysis of impacts on soils, vegetation, visibility and growth-related air quality impacts; and,
- A Good Engineering Practice (GEP) stack height determination.

The analysis of existing air quality generally relies on preconstruction monitoring data collected in accordance with EPA-approved methods. The PSD increment and AAQS analyses are based on air quality dispersion modeling completed in accordance with EPA guidelines.

Based on these required analyses, the Department has reasonable assurance that the proposed project, as described in this report and subject to the conditions of approval proposed herein, will not cause or contribute to a violation of any PSD increment or ambient air quality standard. A brief description of the modeling methods used and results of the required analyses follow. A more complete description is contained in the permit application on file.

#### b. Analysis of the Existing Air Quality

Preconstruction ambient air quality monitoring may be required for pollutants subject to PSD review. However, an exemption to the monitoring requirement can be obtained if the maximum air quality impact resulting from the projected emissions increase, as determined through air quality modeling, is less than a pollutant-specific de minimus concentration. The predicted maximum concentration increase for each pollutant subject to PSD (NSR) is given below:

	SO <sub>2</sub>	TSP & PM <sub>10</sub>	NO <sub>x</sub>	CO	Be	Pb
PSD de minimus Concentra. (ug/m <sup>3</sup> )	13	10	14	575	0.001	0.1
Averaging Time	24-hr	24-hr	Annual	8-hr	24-hr	3 mo.
Maximum Predicted Impact (ug/m <sup>3</sup> )	2.8	2.7	0.16	10.3	.0002	<.007

There are no monitoring de minimus concentrations for H<sub>2</sub>SO<sub>4</sub> mist and inorganic arsenic. As shown above, the predicted impacts are all less than the corresponding de minimus concentrations; therefore, no preconstruction monitoring is required for these pollutants.

#### c. Modeling Method

The EPA-approved Industrial Source Complex Short-Term (ISCST)

dispersion model was used by the applicant to predict the impact of the proposed project on the surrounding ambient air. All recommended EPA default options were used. Downwash parameters were used because the stacks were less than the good engineering practice (GEP) stack height. Five years of sequential hourly surface and mixing depth data from the Tampa Florida National Weather Service (NWS) station collected during 1982 through 1986 were used in the model. Since five years of data were used, the highest-second-high (HSH) short-term predicted concentrations are compared with the appropriate ambient air quality standards or PSD increments. For the annual averages, the highest predicted yearly average was compared with the standards.

#### d. Modeling Results

The applicant first evaluated the potential increase in ambient ground-level concentrations associated with the project to determine if these predicted ambient concentration increases would be greater than specified PSD significant impact levels for criteria pollutants SO<sub>2</sub>, CO, NO<sub>2</sub>, PM and PM<sub>10</sub>. This evaluation was based on the proposed facility operating at load conditions of 100%, 92°F; 80%, 47°F; and 65%, 29°F. Dispersion modeling was performed with receptors placed along the 36 standard radial directions (10 degrees apart) surrounding the proposed unit beginning at 250m and going out at intervals of 250m to a distance of 1500m from the proposed facility. Additional rings were placed at intervals of 2.0, 2.5, 3.0, 4.0, 5.0, 7.5, 10.0, 15.0 and 20.0 km. The results of this modeling presented below show that the increases in ambient ground-level concentrations for all averaging times are less than the PSD significant impact levels for SO<sub>2</sub>, CO, NO<sub>2</sub>, PM and PM<sub>10</sub>.

Avg. Time PSD Signifi. Level (ug/m <sup>3</sup> )	Annual	SO <sub>2</sub>		Annual	CO		PM and PM <sub>10</sub>	
		3-hr	24-hr		1-hr	8-hr	Ann.	24-hr
	1.0	25.0	5.0	1.0	2000	500	1.0	5.0
Ambient Concen. Increase (ug/m <sup>3</sup> )	0.2	12.6	2.8	0.2	15	10	0.04	1.4

Therefore, further dispersion modeling for comparison with AAQS and PSD Class II increment consumption were not required for these pollutants. Pb has no significant impact level; however, maximum predicted Pb concentrations of 0.007 ug/m<sup>3</sup>, 24-hour average were less than the 1.5 ug/m<sup>3</sup> quarterly ambient air quality standard.

Be, inorganic arsenic and H<sub>2</sub>SO<sub>4</sub> mist are noncriteria pollutants, which means that neither national AAQS nor PSD Significant Impacts have been defined for these pollutants. However, the Department does have a draft Air Toxics Permitting Strategy, which defines no threat levels for these pollutants. The

Department and the applicant have used the same modeling procedure described above to evaluate the maximum ground level concentrations of these pollutants for comparison with the no-threat levels. The results of this analysis are shown below:

<u>Avg. Time</u>	<u>Be Annual</u>	<u>H<sub>2</sub>SO<sub>4</sub> mist 24-hr</u>	<u>As Annual</u>
No Threat-Level (ug/m <sup>3</sup> )	0.00042	2.4	.00023
<u>Max. Concen.</u>	<u>0.000003</u>	<u>0.5</u>	<u>.00015</u>

All of these values are less than their respective no-threat levels.

The nearest PSD Class I area is the Chassahowitzka National Wilderness Area located about 100 km northwest of the facility. The predicted impact of SO<sub>2</sub> and NO<sub>2</sub> emissions from the proposed project on this area was evaluated by first using the ISCST model to predict maximum increment consumptions by the source alone and by comparing these predicted values to the appropriate recommended significance levels to determine whether further modeling was necessary. The significance levels used by the Department were the more stringent National Park Service (NPS) recommended levels. The predicted maximum NO<sub>2</sub> and SO<sub>2</sub> increment consumptions for all applicable averaging times, except for the SO<sub>2</sub> 24-hour average, were less than these significance levels. Therefore, no further modeling for these time periods was required. Since the predicted maximum SO<sub>2</sub> 24-hour concentration was predicted to be greater than the NPS levels, the Department and the NPS directed the applicant to further evaluate the SO<sub>2</sub> short term impacts on the Class I area. The applicant used ISCST and modeled the inventory of all PSD increment consuming and expanding sources on the selected days and at the specific receptors where the proposed facility's impacts were significant. The inventory was provided by the Department. Results of this analysis show that on the days and at the location of significant impacts due to the proposed facility, total 24-hour SO<sub>2</sub> impacts at Chassahowitzka were predicted to be less than the allowable 24-hour PSD Class I increment of 5 ug/m<sup>3</sup>. Therefore, emissions from the proposed project will not cause or contribute to an exceedance of SO<sub>2</sub> increments.

#### e. Additional Impacts Analysis

A Level-1 screening analysis using the EPA model, VISCREEN was used to determine any potential adverse visibility impacts on the Class I Chassahowitzka National Wilderness Area located about 100km away. Based on this analysis, the maximum predicted visual impacts due to the proposed project are less than the screening criteria both inside and outside the Class I area. A comprehensive air quality related values (AQRV) analysis for this Class I area

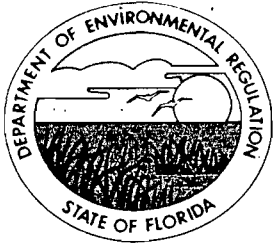
was performed by the applicant. No significant impacts on the Class I area are expected.

In addition, the maximum predicted concentrations from NO<sub>x</sub>, CO, SO<sub>2</sub>, PM and PM<sub>10</sub> are predicted to be less than the AAQS, including the national secondary standards designed to protect public welfare-related values. As such, no harmful effects on soil and vegetation are expected in the area of the project. Also, the proposed modification will not significantly change employment, population, housing or commercial/industrial development in the area to the extent that a significant air quality impact will result.

## VII. CONCLUSION

Based on the information provided by Auburndale Power Partners, the Department has reasonable assurance that the proposed installation of the 156 MW combined cycle system, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-2 of the Florida Administrative Code.

*P. Prentice Lewis*  
#41755



## Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

**PERMITTEE:**

Auburndale Power Partners  
12500 Fair Lakes Circle, Ste. 420  
Fairfax, Virginia 22033

**Permit Number:** AC 53-208321

PSD-FL-185

**Expiration Date:** Oct. 30, 1995

**County:** Polk

**Latitude/Longitude:** 28°03'15"N  
81°48'20"W

**Project:** 156 MW Combined Cycle  
System

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 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 or on file with the Department and made a part hereof and specifically described as follows:

Auburndale Power Partners proposes to operate a combined cycle system consisting of one combustion turbine, one steam turbine, and one heat recovery steam generator and ancillary equipment. This total system is rated at 156 MW output nominal capacity (52 MW output from the steam turbine generator). This facility is located on County Road 544-A (Derby Avenue) in Auburndale, Polk County, Florida. The UTM coordinates are Zone 17, 420.8 km East and 3103 km North.

The 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. Auburndale Power Partners (APP) application received February 10, 1992.
2. Department's letter dated March 10, 1992.
3. APP's letter received April 28, 1992.
4. APP's letter received May 19, 1992.
5. APP's letter received June 18, 1992.



PERMITTEE:  
Auburndale Power Partners

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PSD-FL-185  
Expiration Date: October 30, 1995

**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.

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**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.

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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 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

- (x) Determination of Best Available Control Technology (BACT)
- (x) Determination of Prevention of Significant Deterioration (PSD)
- (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;

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- 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:**

Emission Limits

1. The maximum allowable emissions from this source shall not exceed the emission rates listed in Table 1.
2. Visible emissions shall not exceed 20% opacity except at full load in which case visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year).
4. This source is allowed to use natural gas as the primary fuel and low sulfur No. 2 distillate oil as the secondary fuel (with the conditions specified in Specific Condition No. 5 below).
5. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:
  - a) Maximum low sulfur No. 2 fuel oil consumption for the facility shall be allowed for the equivalent of 18 months (13,140 hours) of the initial facility operation, or until the Florida Gas Transmission (FGT) Phase III expansion is complete and natural gas is available; whichever occurs first. The unit start-up is expected by 10/94 and natural gas would be used by 4/96.
  - b) Once the FGT Phase III expansion is complete and natural gas is available to the facility, low sulfur No. 2 fuel oil firing shall be limited to 400 hours annually.

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**SPECIFIC CONDITIONS:**

- c) Maximum sulfur content in the low sulfur No. 2 fuel oil shall not exceed 0.05 percent by weight.
- 6. a) The maximum heat input of 1,170 MMBtu/hr at ISO conditions (base load) for distillate fuel oil No. 2.
- b) The maximum heat input of 1,214 MMBtu/hr at ISO conditions (base load) for natural gas.
- 7. Any change in the method of operation, equipment or operating hours shall be submitted to DER's Bureau of Air Regulation.
- 8. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility may be included in the operating permit.

Compliance Determination

9. Compliance with the NO<sub>x</sub>, SO<sub>2</sub>, CO, PM, PM<sub>10</sub>, and VOC standards shall be determined (while operating at 95-100% of the permitted maximum heat rate input) within 180 days of initial operation and annually thereafter, by the following reference methods as described in 40 CFR 60, Appendix A (July, 1991 version) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 5. Determination of Particulate Matter Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 8. Determination of the Sulfuric Acid of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 20. Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Stationary Gas Turbines
- Method 25A. Determination of the Volatile Organic Compounds Emissions from Stationary Sources

Other DER approved methods may be used for compliance testing after prior Departmental approval.

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

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11. Compliance with the SO<sub>2</sub> emission limit can also be determined by calculations based on fuel analysis using ASTM D4292 for the sulfur content of liquid fuels and ASTM D4084-82 or D3246-81 for sulfur content of gaseous fuel.

12. Trace elements of Beryllium (Be) shall be tested during initial compliance test using EMTIC Interim Test Method. As an alternative, Method 104 may be used; or Be may be determined from fuel sample analysis using either Method 7090 or 7091, and sample extraction using Method 3040 as described in the EPA solid waste regulations SW 846.

13. Mercury (Hg) shall be tested during initial compliance test using EPA Method 101 (40 CFR 61, Appendix B) or fuel sampling analysis using methods acceptable to the Department.

14. During performance tests, to determine compliance with the proposed NO<sub>x</sub> standard, measured NO<sub>x</sub> emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_x = (NO_x \text{ obs}) \left( \frac{P_{\text{ref}}}{P_{\text{obs}}} \right)^{0.5} e^{19 (H_{\text{obs}} - 0.00633) \left( \frac{288^\circ K}{T_{\text{AMB}}} \right)^{1.53}}$$

where:

NO<sub>x</sub> = Emissions of NO<sub>x</sub> at 15 percent oxygen and ISO standard ambient conditions.

NO<sub>x</sub> obs = Measured NO<sub>x</sub> emission at 15 percent oxygen, ppmv.

P<sub>ref</sub> = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P<sub>obs</sub> = Measured combustor inlet absolute pressure at test ambient pressure.

H<sub>obs</sub> = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T<sub>AMB</sub> = Temperature of ambient air at test.

15. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 15 days in writing in advance of the compliance test(s). The sources shall

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operate between 95% and 100% of permitted capacity during the compliance test(s) as adjusted for ambient temperature. Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

16. The permittee shall leave sufficient space suitable for future installation of SCR equipment should the facility be unable to meet the NO<sub>x</sub> standards, if required.

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

18. A continuous monitoring system shall be installed to monitor and record the fuel consumption on each unit. While steam injection is being utilized for NO<sub>x</sub> control, the water to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. The system shall meet the requirements of 40 CFR Part 60, Subpart GG.

19. Sulfur, nitrogen content and lower heating value of the fuel being fired in the combustion turbines shall be based on a weighted 12 month rolling average from fuel delivery receipts. The records of fuel oil usage shall be kept by the company for a two-year period for regulatory agency inspection purposes. For sulfur dioxide, periods of excess emissions shall be reported if the fuel being fired in the gas turbine exceeds 0.05 percent sulfur by weight.

Rule Requirements

20. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-2 and 17-4, Florida Administrative Code and 40 CFR (July, 1991 version).

21. The sources shall comply with all requirements of 40 CFR 60, Subpart GG, and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

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

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

24. If construction does not commence within 18 months of issuance of this permit, then the permittee shall obtain from DER a review and, if necessary, a modification of the control technology and allowable emissions for the unit(s) on which construction has not commenced (40 CFR 52.21(r)(2)).

25. Quarterly excess emission reports, in accordance with the July 1, 1991 version of 40 CFR 60.7 and 60.334 shall be submitted to DER's Southwest District office.

26. Literature on equipment selected shall be submitted as it becomes available. A CT-specific graph of the relationship between NOx emissions and steam injection and also another of ambient temperature and heat inputs to the CT shall be submitted to DER's Southwest District office and the Bureau of Air Regulation.

27. Construction period fugitive dust emissions shall be minimized by covering or watering dust generation areas.

28. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur, nitrogen contents and the lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

29. 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).

30. 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



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noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this \_\_\_\_\_ day  
of \_\_\_\_\_, 1992

**STATE OF FLORIDA DEPARTMENT  
OF ENVIRONMENTAL REGULATION**

\_\_\_\_\_  
Carol M. Browner  
Secretary

TABLE 1 - ALLOWABLE EMISSION RATES

Pollutant	Fuel <sup>A</sup>	Allowable Emission Standard/Limitation	Basis
NO <sub>x</sub>	Gas	15 ppmvd @ 15% O <sub>2</sub> & ISO ( 78.6 lbs/hr; 344.3 TPY) <sup>B</sup>	BACT
	Gas	25 ppmvd @ 15% O <sub>2</sub> & ISO (131.0 lbs/hr; 509 TPY)	BACT
	Oil	42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY)	BACT
CO	Gas	21 ppmvd (43.5 lbs/hr; 190.5 TPY) <sup>C</sup>	
	Gas	15 ppmvd (43.5 lbs/hr; 190.5 TPY)	BACT
	Oil	25 ppmvd (73.0 lbs/hr; 319.7 TPY)	BACT
VOC	Gas	6.0 lbs/hr; 26.3 TPY	BACT
	Oil	10.0 lbs/hr; 43.8 TPY	BACT
PM <sub>10</sub>	Gas	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY)	BACT
	Oil	0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)	BACT
SO <sub>2</sub>	Gas	40.0 lbs/hr; 175.2 TPY	BACT
	Oil	70.0 lbs/hr; 306.6 TPY	BACT
H <sub>2</sub> SO <sub>4</sub>	Gas	5.1 lbs/hr; 22.3 TPY	BACT
	Oil	8.9 lbs/hr; 39.0 TPY	BACT
Opacity	Gas	10% opacity	BACT
	Oil	10% opacity	BACT
Hg	Gas	1.10 x 10 <sup>-5</sup> lb/MMBtu (0.001 lb/hr; 0.06 TPY)	Appl.
	Oil	3.0 x 10 <sup>-6</sup> lb/MMBtu (0.004 lb/hr; 0.016 TPY)	Appl.
As	Oil	1.61 x 10 <sup>-4</sup> (0.20 lb/hr; 0.05 TPY)	BACT
F	Oil	3.30 x 10 <sup>-5</sup> (0.04 lb/hr; 0.17 TPY)	Appl.
Be	Oil	2.0 x 10 <sup>-6</sup> (0.003 lb/hr; 0.014 TPY)	BACT
Pb	Oil	1.04 x 10 <sup>-4</sup> (0.13 lb/hr; 0.510 TPY)	BACT

A) Fuel: Natural Gas. Emissions are based on 8360 hours per year operating time burning natural gas and 400 hours per year operating time burning No. 2 fuel oil.

Fuel: No. 2 Distillate Fuel Oil (0.05% S). Emissions are based on 8760 hours per year burning fuel oil.

B) The NO<sub>x</sub> maximum limit will be lowered to 15 ppm by 9/30/97 (about 18 months after natural gas is first fired) using appropriate combustion technology improvements or SCR.

C) 21 ppmvd at minimum load.  
15 ppmvd at base load.

Best Available Control Technology (BACT) Determination  
Auburndale Power Partners  
Polk County

The applicant proposes to install a combustion turbine generator at their facility in Polk County. The generator system will consist of one nominal 104 megawatt (MW) combustion turbine (CT), with exhaust through heat recovery steam generator (HRSG), which will be used to power a nominal 52 MW steam turbine.

The combustion turbine (Westinghouse 501D) will be capable of combined cycle operation. The applicant requested that the combustion turbine use oil (0.05% S by weight) for the first eighteen (18) months; thereafter, they will use natural gas. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity factor and type of fuel fired to be as follows:

Pollutant	Emissions (TPY)		PSD Significant Emission Rate (TPY)
	Oil	Gas/Oil	
NO <sub>x</sub>	1,007	509	40
SO <sub>2</sub>	307	175.2	40
PM/PM <sub>10</sub>	161	46	25/15
CO	320	190	100
VOC	44	27	40
H <sub>2</sub> SO <sub>4</sub>	39	23	7
Be	0.01	0.01	0.0004
As	0.05	0.05	0.1
Pb	0.51	0.51	0.6

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

Date of Receipt of a BACT Application

February 2, 1992

BACT Determination Requested by the Applicant

Pollutant	Proposed Limits
NO <sub>x</sub>	25 ppmvd @ 15% O <sub>2</sub> (natural gas burning) 42 ppmvd @ 15% O <sub>2</sub> for oil firing
SO <sub>2</sub>	0.05% sulfur by weight
CO, VOC	Combustion Control
PM/PM <sub>10</sub>	Combustion Control

BACT Determination Procedure

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

- (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards or BACT determinations of any other state.
- (d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, 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 combined cycle power plants can be grouped into categories based upon what control equipment and techniques are available to control emissions from these facilities. Using this approach, the emissions can be classified as follows:

- o Combustion Products (e.g., particulates). Controlled generally by good combustion of clean fuels.
- o Products of Incomplete Combustion (e.g., CO). Control is largely achieved by proper combustion techniques.
- o Acid Gases (e.g., NO<sub>x</sub>). Controlled generally by gaseous control devices.

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

### BACT POLLUTANT ANALYSIS

#### COMBUSTION PRODUCTS

##### **Particulate Matter (PM/PM<sub>10</sub>)**

The design of this system ensures that particulate emissions will be minimized by combustion control and the use of clean fuels. The particulate emissions from the combustion turbine when burning natural gas and fuel oil will not exceed 0.013 and 0.047 lb/MMBtu, respectively. The Department accepts the applicant's proposed control for particulate matter and heavy metals.

##### **Lead, Arsenic, Beryllium (Pb, As, Be)**

The Department agrees with the applicant's rationale that there are no feasible methods to control lead, beryllium, and arsenic; except by limiting the inherent quality of the fuel.

Although the emissions of these toxic pollutants could be controlled by particulate control devices, such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of these pollutants.

#### PRODUCTS OF INCOMPLETE COMBUSTION

##### **Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)**

The emissions of carbon monoxide exceed the PSD significant emission rate of 100 TPY. The applicant has indicated that the carbon monoxide emissions from the proposed turbine is on exhaust concentrations of 15 ppmvd for natural gas firing and 25 ppmvd for fuel oil firing.

The majority of BACT emissions limitations have been based on combustion controls for carbon monoxide and volatile organic compounds minimization, additional control is achievable through the use of catalytic oxidation. Catalytic oxidation is a postcombustion control that has been employed in CO nonattainment areas where regulations have required CO emission levels to be less than those associated with wet injection. These installations have been required to use LAER technology and typically have CO limits in the 10-ppm range (corrected to dry conditions).

In an oxidation catalyst control system, CO emissions are reduced by allowing unburned CO to react with oxygen at the surface of a precious metal catalyst such as platinum. Combustion of CO starts at about 300°F, with efficiencies above 90 percent occurring at temperatures above 600°F. Catalytic oxidation occurs at temperatures 50 percent lower than that of thermal oxidation, which reduces the amount of thermal energy required. For CT/HRSG combinations, the oxidation catalyst can be located directly after the CT or in the HRSG. Catalyst size depends upon the exhaust flow, temperature, and desired efficiency.

Due to the oxidation of sulfur compounds and excessive formation of H<sub>2</sub>SO<sub>4</sub> mist emissions, oxidation catalyst are not considered to be technically feasible for gas turbines fired with fuel oil. Catalytic oxidation has not been demonstrated on a continuous basis when using fuel oil.

Use of oxidation catalyst technology would be feasible for natural gas-fired unit; however, the cost effectiveness of \$7,099 per ton of CO removed will have an economic impact on this project.

The Department is in agreement with the applicant's proposal of combustor design and good operating practices as BACT for CO and VOCs for this cogeneration project.

#### ACID GASES

##### **Nitrogen Oxides (NO<sub>x</sub>)**

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<sub>x</sub> control.

The applicant has stated that BACT for nitrogen oxides will be met by using steam injection and advanced combustor design to limit emissions to 25 ppmvd (corrected to 15% O<sub>2</sub>) when burning natural gas and 42 ppmvd (corrected to 15% O<sub>2</sub>) when burning fuel oil.

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

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

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

- a) Reduced power output.
- b) Ammonia slip.
- c) Disposal of hazardous waste generated (spend catalyst).
- d) A total SCR energy penalty of 14,911 MMBtu/yr, which is equivalent to the use of 14.2 million ft<sup>3</sup> of natural gas annually, based on a gas heating value of 1,050 Btu per ft<sup>3</sup>.
- e) Since several schools are located within close proximity to the site, the Polk County Planning Commission and the school boards have expressed concern over the potential for ammonia (NH<sub>3</sub>) exposure to high concentration and storage, as well.
- f) Ammonium bisulfate and ammonium sulfate particulate emissions (ammonium salts) due to the reaction of NH<sub>3</sub> with SO<sub>3</sub> present in the exhaust gases.
- g) Cost effectiveness for the application of SCR technology to the Auburndale cogeneration project was considered to be \$6,900 per ton of NO<sub>x</sub> removed.

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

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

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

For fuel oil firing, the cost associated with controlling NO<sub>x</sub> emissions must take into account the potential operating problems that can occur with using SCR in the oil firing mode.

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

The latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NO<sub>x</sub> injection ratio. For natural gas firing operation NO<sub>x</sub> emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater injection ratio. By lowering the injection ratio for oil firing, testing has indicated that NO<sub>x</sub> can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases. Based on this strategy SCR has been both proposed and established as BACT for oil fired combined cycle facilities with NO<sub>x</sub> 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 cost (operating plus amortized capital cost) to install SCR for this project at 100 percent capacity factor is \$2,283,326. Taking into consideration the total annual cost, a cost/benefit analysis of using SCR can now be developed.

Based on the information supplied by the applicant, it is estimated that the maximum annual NO<sub>x</sub> emissions using steam injection and advanced combustor design will be 509 tons/year. Assuming that SCR would reduce the NO<sub>x</sub> emissions by 65%, about 178 tons of NO<sub>x</sub> would be emitted annually. When this reduction (331 TPY) is taken into consideration with the total levelized annual cost of \$2,283,326; the cost per ton of controlling NO<sub>x</sub> is \$6,900. This calculated cost is higher than has previously been approved as BACT.

A review of the latest DER BACT determinations show limits of 15 ppmv (natural gas) using low-NO<sub>x</sub> burn technology. Based on the equipment selected, the applicant could not achieve that limit (15 ppmv) due to the fact that it is technically infeasible since their vendor, Westinghouse, does not presently offer this technology. The applicant and their CT vendor, Westinghouse, have agreed to lower NO<sub>x</sub> to 15 ppm by 9/30/97. This lower NO<sub>x</sub> limit will be



achieved by application of low-NO<sub>x</sub> burners or SCR. Therefore, the Department has accepted the steam injection and advanced combustor design as BACT for a limited time (up to 9/30/97).

#### **Sulfur Dioxide(SO<sub>2</sub>) and Sulfuric Acid Mist (H<sub>2</sub>SO<sub>4</sub>)**

The applicant has stated that sulfur dioxide (SO<sub>2</sub>) and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) emissions when firing fuel oil will be controlled by lowering the operating time to 400 hours/year per unit and the fuel oil sulfur content to a maximum of 0.05 % by weight. This will result in an annual emission rate of 175 tons SO<sub>2</sub> per year and 23 tons H<sub>2</sub>SO<sub>4</sub> mist per year.

In accordance with the "top down" BACT review approach, only two alternatives exist that would result in more stringent SO<sub>2</sub> emissions. These include the use of a lower sulfur content fuel oil or the use of wet lime or limestone-based scrubbers, otherwise known as flue gas desulfurization (FGD).

In developing the NSPS for stationary gas turbines, EPA recognized that FGD technology was inappropriate to apply to these combustion units. EPA acknowledged in the preamble of the proposed NSPS that "Due to the high volumes of exhaust gases, the cost of flue gas desulfurization (FGD) to control SO<sub>2</sub> emissions from stationary gas turbines is considered unreasonable." (23). EPA reinforced this point when, later on in the preamble, they stated that "FGD... would cost about two to three times as much as the gas turbine." (23). The economic impact of applying FGD today would be no different.

Furthermore, the application of FGD would have negative environmental and energy impacts. Sludge would be generated that would have to be disposed of properly, and there would be increased utility (electricity and water) costs associated with the operation of a FGD system. Finally, there is no information in the open literature to indicate that FGD has ever been applied to stationary gas turbines burning distillate oil.

The elimination of flue gas control as a BACT option then leaves the use of low sulfur fuel oil as the next option to be investigated. Auburndale Power Partners, as stated above, has proposed the use of No. 2 fuel oil with a 0.05% sulfur by weight as BACT for this project. The Department accepts their proposal as BACT for this project.

BACT Determination by DER

NO<sub>x</sub> Control

The information that the applicant presented and Department calculations indicates that the cost of controlling NO<sub>x</sub> (\$6,900/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<sub>x</sub> control is not justifiable as BACT at this time.

A review of the permitting activities for combined cycle proposals across the nation indicates that SCR has been required and most recently proposed for installations with a variety of operating conditions (i.e., natural gas, fuel oil, 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 steam injection and advanced combustor design as BACT for a limited time (up to 9/30/97).

The Department will revise and lower the allowable BACT limit for this project no later than 9/30/97. It is the Department's understanding that Westinghouse will develop new combustor technology within this period. If the 15 (gas)/42 (oil) ppmvd emission rates cannot be met by September 30, 1997, SCR will be installed. Therefore, the permittee shall install a duct module suitable for future installation of SCR equipment.

SO<sub>2</sub> Control

BACT for sulfur dioxide is the burning of fuel oil No. 2 with 0.05% sulfur content by weight.

VOC and CO Control

Combustion control will be considered as BACT for CO and VOC when firing natural gas.

Other Emissions Control

The emission limitations for PM and PM<sub>10</sub>, Be, Pb, and As are based on previous BACT determinations for similar facilities.

The emission limits for Auburndale Power Partners project are thereby established as follows:

Pollutant	Emission Standards/Limitations		Method of Control
	Oil (a)	Gas (b)	
NO <sub>x</sub>	42 ppmv	25 ppmv (c) 15 ppmv	Steam Injection
CO	73 lbs/hr	44 lbs/hr	Combustion
PM & PM10	37 lbs/hr	10 lbs/hr	Combustion
SO <sub>2</sub>	70 lbs/hr	40 lbs/hr	No. 2 Fuel Oil (0.05% S)
H <sub>2</sub> SO <sub>4</sub>	89 lbs/hr	5.1 lbs/hr	No. 2 Fuel Oil (0.05% S)
VOC	10 lbs/hr	6 lbs/hr	Combustion
Pb	0.13 lb/hr		Fuel Quality
As	0.20 lb/hr		Fuel Quality
Be	0.003 lb/hr		Fuel Quality

- (a) No. 2 fuel oil burning for the first eighteen (18) months of operation. Max. 0.05% S by weight.
- (b) Natural gas (8360 hours per year), Fuel oil (400 hours per year).
- (c) Initial NO<sub>x</sub> emission rates for natural gas firing shall not exceed 25 ppm at 15% oxygen on a dry basis. The permittee shall achieve NO<sub>x</sub> emissions of 15 ppm at 15% oxygen at the earliest achievable date based on steam injection technology or any other technology available, but no later than 9/30/97.

Details of the Analysis May be Obtained by Contacting:

Preston Lewis, BACT Coordinator  
Department of Environmental Regulation  
Bureau of Air Regulation  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Recommended by:

Approved by:

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

Carol M. Browner, Secretary  
Dept. of Environmental Regulation

\_\_\_\_\_  
Date 1992

\_\_\_\_\_  
Date 1992



Environmental Consulting & Technology, Inc.

RECEIVED

JUL 08 1992

Division of Air  
Resources Management

July 7, 1992  
ECT No. 91077-0400-1100

RECEIVED

JUL 08 1992

Division of Air  
Resources Management

Mr. C. H. Fancy, P.E.  
Chief  
Bureau of Air Quality Management  
Florida Department of  
Environmental Regulation  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

Re: Auburndale Cogeneration Project  
PSD-FL-185, AC 53-208321

Dear Mr. Fancy:

A summary of allowable emission rates for the Auburndale Cogeneration Project is attached as requested by Ms. Theresa Heron. These rates reflect the use of low sulfur distillate fuel oil (maximum of 0.05 weight percent sulfur) and reduced NO<sub>x</sub> emissions (15 ppmvd at 15% O<sub>2</sub> and ISO conditions) to be achieved within five years (PHASE II Emission Rates).

Combustion turbine (CT) heat input rates at ISO conditions were also requested by Ms. Heron. Maximum CT heat input at ISO conditions are 1,214 MMBtu/hr and 1,170 MMBtu/hr for natural gas and distillate fuel oil firing, respectively.

Please contact me at (904) 336-0444 or Patricia Haslach at (703) 222-0445 if there are any questions concerning the attached emission rates.

Sincerely,

ENVIRONMENTAL TECHNOLOGY & CONSULTING, INC.

*Thomas W. Davis*

Thomas W. Davis, P.E.  
Senior Engineer

TWD/tw  
Attachment

cc: Ms. Patricia Haslach, Mission Energy  
Mr. Don Fields, Mission Energy  
Mr. George Schott, Westinghouse

*J. Heron*  
*C. Halladay*  
*B. Thomas, SW Dist*

*A. Harper, EPA*  
*G. Shaver, NPS*  
*P. Lewis*

P.O. Box 8188  
Gainesville, FL  
32605-8188

5200 Newberry Road  
Suite E-1  
Gainesville, FL  
32607

(904)  
336-0444

FAX (904)  
335-0373

**Auburndale Cogeneration Project**  
**Table 1 - Allowable Emission Rates**

**A. PHASE I (Start-up through 9/30/97)**

Pollutant	Source	Fuel Type	Allowable Emission Standard/Limitation
NO <sub>x</sub>	CT <sup>1</sup>	NG <sup>2</sup> DFO <sup>4</sup>	25 ppmvd @ 15% O <sub>2</sub> & ISO <sup>3</sup> (131.0 lbs/hr; 573.8 TPY) 42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY) <sup>5</sup>
CO	CT	NG DFO	15 ppmvd (43.5 lbs/hr; 190.5 TPY) 25 ppmvd (73.0 lbs/hr; 319.7 TPY)
VOC	CT	NG DFO	6.0 lbs/hr; 26.3 TPY 10.0 lbs/hr; 43.8 TPY
PM <sub>10</sub>	CT	NG DFO	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY) 0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)
SO <sub>2</sub>	CT	NG DFO	40.0 lbs/hr; 175.2 TPY 70.0 lbs/hr; 306.6 TPY
H <sub>2</sub> SO <sub>4</sub>	CT	NG DFO	5.1 lbs/hr; 22.3 TPY 8.9 lbs/hr; 39.0 TPY
Opacity <sup>6</sup>	CT	NG DFO	≤ 10% opacity ≤ 10% opacity
Opacity <sup>7</sup>	CT	NG DFO	≤ 20% opacity ≤ 20% opacity

**B. PHASE II (Effective 10/31/97)**

Pollutant	Source	Fuel Type	Allowable Emission Standard/Limitation
NO <sub>x</sub>	CT	NG DFO	15 ppmvd @ 15% O <sub>2</sub> & ISO ( 78.6 lbs/hr; 344.3 TPY) 42 ppmvd @ 15% O <sub>2</sub> & ISO (230.0 lbs/hr; 1,007.4 TPY) <sup>5</sup>
CO	CT	NG DFO	21 ppmvd (43.5 lbs/hr; 190.5 TPY) 25 ppmvd (73.0 lbs/hr; 319.7 TPY)
VOC	CT	NG DFO	6.0 lbs/hr; 26.3 TPY 10.0 lbs/hr; 43.8 TPY
PM <sub>10</sub>	CT	NG DFO	0.0134 lb/MMBtu (10.5 lbs/hr; 46.0 TPY) 0.0472 lb/MMBtu (36.8 lbs/hr; 161.2 TPY)
SO <sub>2</sub>	CT	NG DFO	40.0 lbs/hr; 175.2 TPY 70.0 lbs/hr; 306.6 TPY
H <sub>2</sub> SO <sub>4</sub>	CT	NG DFO	5.1 lbs/hr; 22.3 TPY 8.9 lbs/hr; 39.0 TPY
Opacity <sup>6</sup>	CT	NG DFO	≤ 10% opacity ≤ 10% opacity
Opacity <sup>7</sup>	CT	NG DFO	≤ 20% opacity ≤ 20% opacity

Auburndale Cogeneration Project  
Table 1 - Allowable Emission Rates  
(continued)

- Notes:
1. CT: combustion turbine
  2. NG: natural gas
  3. ISO: International Standards Organization
  4. DFO: distillate fuel oil
  5. Distillate fuel oil limits are based on a fuel bound nitrogen (FBN) content less than or equal to 0.015 weight percent. For FBN levels greater than 0.015 weight percent, emission limits are adjusted in accordance with the FBN allowance contained in 40 CFR Part 60, Subpart GG.
  6. Opacity limits exclude start-up, shutdown, and transfer periods. Start-up is defined as that period of time from the initiation of the combustion turbine until the unit reaches a minimum of 50 percent load. This period shall not exceed 60 minutes for a hot start-up and 120 minutes for a cold start-up. A hot start-up is defined as any start of the combustion turbine within three hours of shutdown. All other starts are cold starts. Shutdown is defined as that period of time from initial lowering of combustion turbine below 50 percent of the base load to the cessation of the combustion turbine. This period shall not exceed 120 minutes. Transfer period is the amount of time from the initiation of the transfer process in the combustion turbine between liquid and gaseous fuels, including temporary change in steam injection levels, to the completion of this process; not to exceed 30 minutes.
  7. Opacity limits applicable during start-up, shutdown, and transfer periods. Start-up, shutdown, and transfer periods are as defined in Note 6.



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

75 Spring Street, S.W.  
Atlanta, Georgia  
30303



June 26, 1992

RECEIVED  
JUL 01 1992  
Division of Air  
Resources Management

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

Dear Mr. Fancy:

As you requested, we have reviewed the Auburndale Power Partners' (Auburndale) permit application and related information regarding a proposed cogeneration facility in Polk County, Florida, for completeness. The Auburndale facility would be located approximately 105 km west of the Chassahowitzka Wilderness Area (WA), a Class I air quality area administered by the Fish and Wildlife Service. In general, we consider the Auburndale permit application complete with respect to the Class I air quality dispersion modeling analysis. However, we have the following comments regarding the best available control technology (BACT) and air quality related values (AQRVs) analyses contained in the permit application and supplemental information.

### Best Available Control Technology Analysis

The proposed project would be a significant emitter of particulate matter (PM), lead (Pb), beryllium (Be), carbon monoxide (CO), volatile organic compounds (VOC), sulfur dioxide (SO<sub>2</sub>), sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>), and nitrogen oxides (NO<sub>x</sub>). Auburndale proposes to minimize these emissions by using proper combustion controls, burning low sulfur fuel (initially oil with a maximum sulfur content of 0.05 percent, and then gas when it becomes available), and use of water injection and advanced burner design. We agree that proper combustion controls and burning a low sulfur fuel are BACT for PM, Pb, Be, CO, VOC, SO<sub>2</sub>, and H<sub>2</sub>SO<sub>4</sub>. We are pleased that Auburndale has agreed to lower the maximum sulfur content of the fuel from the originally proposed 0.20 percent to 0.05 percent. This change will result in a significant reduction in SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> emissions when Auburndale fires the turbine with oil. For NO<sub>x</sub>, we believe that either water injection in combination with Selective Catalytic Reduction (SCR), or dry low-NO<sub>x</sub> combustors is the BACT for new combined cycle combustion turbine projects. Dry low-NO<sub>x</sub> combustors can

reduce NO<sub>x</sub> levels to less than 15 parts per million (ppm) when firing natural gas, while SCR can achieve flue gas NO<sub>x</sub> concentrations as low as 6 ppm when burning gas and 9 ppm when burning oil.

It is evident that the BACT process is driving emissions from combustion turbines downward, and that applicants are looking for ways to inherently lower emissions, rather than opting for add-on flue gas cleaning technologies. The advantages of this approach are obvious. For example, with dry low-NO<sub>x</sub> combustors, the potential problems often cited with SCR (i.e., ammonia slip, disposal of spent catalyst, accidental release of stored ammonia, etc.) would not be a factor. Assuming this process continues, and inherently lower emitting systems are developed, such an approach may be preferred from a total environmental standpoint. Therefore, although lower NO<sub>x</sub> levels can be currently achieved with SCR compared to dry low-NO<sub>x</sub> combustors, we believe that for areas that are not currently experiencing adverse effects related to NO<sub>x</sub> emissions, either system represents BACT for new combined cycle turbines. In areas where NO<sub>x</sub>-related adverse impacts have been documented, to minimize NO<sub>x</sub> emissions as much as possible, we believe that there is overwhelming support for SCR. Therefore, for the proposed Auburndale project, we recommend that, as a minimum, you specify dry low-NO<sub>x</sub> combustors as BACT for NO<sub>x</sub> emissions and that you lower the NO<sub>x</sub> emission rate from the proposed 25 ppm to 15 ppm when burning gas. We note that such a determination would be consistent with your recent review of the Orlando Cogen application, in which you specified dry low-NO<sub>x</sub> combustors and a NO<sub>x</sub> limit of 15 ppm as BACT.

#### Air Quality Related Values Analysis

Auburndale performed the visibility analysis using the EPA VISCREEN model. We have reviewed this analysis and have determined it to be complete. The results indicate that the proposed emissions should not cause any plume-related impacts at the Chassahowitzka WA. We are generally satisfied with Auburndale's analysis of potential effects on vegetation and soils. However, a few items are missing from this part of the AQRV analysis. First, the analysis cited old references in the vegetation section. There are numerous recent references that could be included. Second, Auburndale failed to include the references on which they based pollution threshold concentrations, and also failed to include the duration of exposure on which these threshold values were based. We suggest that they include this information to make the AQRV analysis more meaningful.

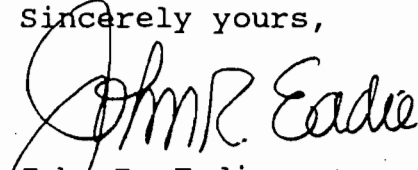
Auburndale failed to address potential effects on wildlife resulting from acid deposition (i.e., loss of invertebrate food base, death of fish and amphibian eggs and larvae). Freshwater



creeks flowing into the WA provide important feeding areas for the Federally endangered peregrine falcon and bald eagle, and their integrity is essential to support these species in the WA. Therefore, Auburndale should assess the effects of increased acid deposition on the invertebrates, fish, and amphibians that inhabit these freshwater creeks, in addition to addressing any indirect effects on other wildlife species.

We appreciate the opportunity to be involved in the completeness review of the Auburndale application, and we hope that you find the above comments useful. We also reserve the right to submit additional comments during the official public comment period for this project. If you have any questions regarding these comments, please contact Mr. John Notar of our Air Quality Branch in Denver at telephone number 303/969-2071.

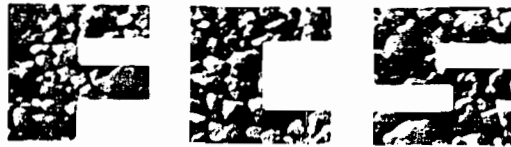
Sincerely yours,



John R. Eadie  
Acting Regional Director

cc:

Ms. Jewell Harper, Chief  
Air Enforcement Branch  
Air, Pesticides and Toxic Management Division  
U.S. EPA, Region 4  
345 Courtland Street, NE  
Atlanta, Georgia 30365



FLORIDA CRUSHED STONE COMPANY  
CEMENT / POWER / LIME PLANT

June 25, 1992

Mr. Bruce Mitchell  
Florida Department of Environmental Regulation  
2600 Blairstone Road  
Tallahassee, Florida 32399-2405

RE: **Cement Kiln**  
**AC27-118674, PSD-FL-091C, PSD-FL-091D**

The public notice on the above referenced permitted source to utilize TDF was published on June 6, 1992. Attached, please find a copy of the affidavit for the publication.

If there are any questions, please call me at your convenience.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Tom Mountain'.

Tom Mountain  
Environmental Manager

TM/nc

RECEIVED

JUL 01 1992

Division of Air  
Resources Management

Best Available Copy

THE TAMPA TRIBUNE

Published Daily  
Tampa, Hillsborough County, Florida

State of Florida  
County of Hillsborough

Before the undersigned authority personally appeared  
R. Putney, who on oath says that he is Accounting Manager of The Tampa  
Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida;  
that the attached copy of advertisement being a

LEGAL NOTICE PASCO

in the matter of

STATE OF FLORIDA

was published in said newspaper in the issues of

JUNE 6, 1992

Affiant further says that the said The Tampa Tribune is a newspaper published at  
Tampa, in said Hillsborough County, Florida, and that the said newspaper has heretofore  
been continuously published in said Hillsborough County, Florida, each day  
and has been entered as second class mail matter at the post office in Tampa, in said  
Hillsborough County, Florida, for a period of one year next preceding the first publication  
of the attached copy of advertisement; and affiant further says that he has  
neither paid nor promised any person, firm, or corporation any discount, rebate, commission  
or refund for the purpose of securing this advertisement for publication in the  
said newspaper.

Sworn to and subscribed before me, this 8 day

of JUNE A.D. 19 92

(SEAL)

State of Florida  
Department of  
Environmental Regulation  
Notice of Intent to Issue

Amendments to: AC 27-118674  
PSD-FL-091C  
PSD-FL-091D

The Department of Environmental Regulation (Department) hereby gives notice of its intent to issue to Florida Crushed Stone Company (FCSC) an amendment to the construction permits, Nos. AC 27-118674 and PSD-FL-091 (PSD-FL-091C), authorizing performance tests for pollutant emissions while utilizing/firing whole tires in the facility's cement kiln, and an amendment to the construction permits, Nos. AC 27-118674 and PSD-FL-091 (PSD-FL-091D), authorizing continuous utilization/firing of whole tires in the source, as detailed in the application package. The Department is issuing this intent to issue for the reasons stated below and in the proposed amendments.

The applicant, FCSC, Post Office Box 490300, Leesburg, Florida 34749-0300, submitted a request on May 19, 1992, to the Department's Bureau of Air Regulation (BAR) for authorization to conduct additional pollutant emissions tests on the facility's cement kiln while utilizing/firing whole tires in the facility's cement kiln and to utilize/fire whole tires in the source on a continuous basis after evaluation of the test results. The performance tests for pollutant emissions will be conducted at baseline conditions and while utilizing/firing whole tires at a maximum utilization/firing rate of 15.0% of the total Btu heat input (1.33 tons per hour). The cement kiln was permitted under the construction permits, Nos. AC 27-118674 and PSD-FL-091, and is not permitted to utilize/fire whole tires in accordance with the referenced permits.

The additional emissions tests are being proposed in order to gather data regarding the pollutant emissions while utilizing/firing whole tires in the facility's cement kiln, since FCSC has already conducted pollutant emissions tests (September 18-24, 1990: shredded tires; October 14-16, 1991: whole tires). Screening for a modification and Prevention of Significant Degradation (PSD) will be in accordance with Chapter 403, Florida Statutes (F.S.), Florida Administrative Code (F.A.C.) Chapters 17-2 and 17-4, and Title 40 Code of Federal Regulation (CFR; July, 1991 version).

If, after the performance test results are evaluated by the Department's BAR and affected parties (i.e., Department's Southwest District, U.S. EPA, National Park Service, Hernando County, etc.) and it is determined that actual pollutant emissions did not increase while utilizing/firing whole tires, then an amendment to the construction permits, Nos. AC 27-118674 and PSD-FL-091 (PSD-FL-091D), will be issued with certain Specific Conditions authorizing continuous utilization/firing of whole tires in the source. However, if there is an actual emissions increase in pollutant emissions, FCSC will not be permitted to utilize/fire whole tires without further evaluation by the Department's BAR and involved parties.

The proposed project will occur at the applicant's facility located on U.S. Highway 98 NW of Brooksville, Hernando County, Florida.

The Department has permitting jurisdiction under Chapter 403, F.S., F.A.C. Chapters 17-2 and 17-4, and 40 CFR (July, 1991 version). The project is not exempt from permitting procedures. The Department has determined that permit amendments are required for the proposed activity.

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, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel at the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within fourteen (14) days of publication of this notice. 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 Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the requests/applications 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 publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the following 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.

The requests/applications are available for public inspection during business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

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

Department of  
Environmental Regulation  
Southwest District Office  
4520 Oak Fair Boulevard  
Tampa, Florida 33610-7347

Hernando County Board of  
County Commission  
20 North Main Street  
Room 460  
Brooksville, Florida 34601

Any person may send written comments on the proposed action to Mr. Prestor Lewis at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

BV1173 6/6/92



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

JUN 16 1992

4APT-AEB

RECEIVED

JUN 22 1992

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

Division of Air  
Resources Management

RE: Auburndale Power Partners,  
Auburndale Cogeneration Project (PSD-FL-185)

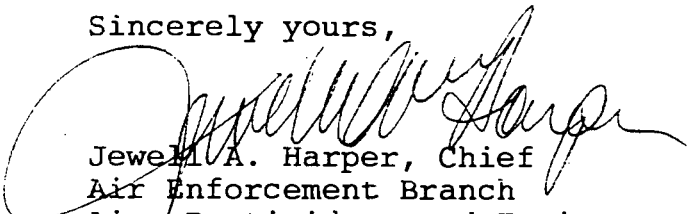
Dear Mr. Fancy:

This is to acknowledge receipt of the Prevention of Significant Deterioration (PSD) permit application and additional information packages for the above referenced facility. The proposed facility will produce approximately 150 megawatts (MW) of electricity and will also provide steam to several nearby manufacturing plants. The project consists of one Westinghouse 501D5 combustion turbine, an unfired heat recovery steam generator, and a steam turbine generator.

Your determination proposes to limit NO<sub>x</sub> emissions through steam injection and advanced burner technology, to limit SO<sub>2</sub> and H<sub>2</sub>SO<sub>4</sub> Mist emissions through limiting the sulfur content of the No. 2 distillate fuel oil, to limit CO and VOC emissions through good combustion techniques, to limit PM/PM<sub>10</sub> emissions by combustion controls and the use of clean fuels, and to limit Pb, Be, and As emissions through the use of clean fuels.

We have reviewed the package as submitted and have no adverse comments. Thank you for the opportunity to review and comment on the package. If you have any questions or comments, please contact Mr. Scott Davis of my staff at (404) 347-5014.

Sincerely yours,

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

cc: J. Perry  
J. Callahan  
J. Thomas, Asst. Dir.  
J. Shaver, Asst.  
J. Thibault, Asst. Dir.  
CHF/PL

Gar-1

# AUBURNDALE POWER PARTNERS, L.P.

12500 Fair Lakes Circle • Suite 420 • Fairfax, Virginia 22033

Phone (703) 222-0445 • Fax (703) 222-0516

June 17, 1992

RECEIVED

JUN 18 1992

Mr. C. H. Fancy, P.E., Chief  
Bureau of Air Quality Management  
Florida Department of Environmental Regulation  
Twin Towers Office Bldg.  
2600 Blair Stone Road  
Tallahassee, Florida 32399-2400

Bureau of  
Air Regulation

**SUBJECT: AUBURNDALE COGENERATION PROJECT - PSD-FL-185, AC 53-208321**

Dear Mr. Fancy:

In follow-up to our meeting on Friday, June 5 with Mr. Preston Lewis and Ms. Theresa Heron, enclosed is the requested additional information as follows:

- (1) Comments on vendor SCR costs obtained by FDER (Attachment I)
- (2) A proposal for lower NOx emission rates based on the staged development of Westinghouse's low Nox combustion turbine burner technology. A compliance proposal for fuel oil use is also provided. (Attachment II)

Vendor information on SCR costs provided by FDER consisted of a letter from Norton Chemical Process Corporation and a paper by Ellison Consultants prepared for the Manufacturers of Emission Controls Association. In general, SCR cost estimates previously provided by Auburndale Power Partners in the February 1992 permit application are in agreement with estimates contained in the Norton letter with the exception of catalyst replacement costs. SCR cost estimation procedures contained in the Ellison paper conflict with the Norton data with respect to installation costs and catalyst replacement frequency and will result in SCR costs which we feel significantly underestimate actual costs. Detailed comments on these two documents are provided in Attachment I.

With regards to the NOx emission proposal, our turbine vendor, Westinghouse has indicated that the expected date a new combustor would be available that could achieve the 15 ppm NOx on gas and 42 ppm NOx on oil with steam injection on a sustainable basis would be

(continued)

Mr. C. H. Fancy, P.E.  
Bureau of Air Quality Management  
Florida Department of Environmental Regulation  
June 17, 1992  
Page 2

in five years. As promised, enclosed is test data supplied by Westinghouse for their Bellingham Cogeneration Plant which documents emission rates currently achievable on a sustained basis with their combustor technology.

We are requesting from FDER five years with NOx emissions of 25 ppm on natural gas and 42 ppm on distillate oil, with the understanding that Auburndale Power Partners (APP) will retrofit with the new combustor as soon as it is available to achieve the 15 ppm on natural gas and 42 ppm on oil. If the 15/42 emission rates cannot be met within five years, SCR will be installed.

Reiterating some of the points made in our meeting we feel should support FDER concurrence with this proposal:

- (1) APP has voluntarily proposed use of a low sulfur fuel oil that exceeds current FDER BACT requirements.
- (2) We are contractually obligated to a turbine vendor who cannot now achieve emissions consistently below 25 ppm and 42 ppm on natural gas and fuel oil with their steam injection technology.
- (3) Contrasting our facility from the Orlando Cogen facility, it is much more difficult to obtain 15 ppm on natural gas for a dual fuel fired combustor, where 42 ppm is required for compliance when burning fuel oil.
- (4) We have demonstrated that SCR is not cost effective for our project, and that many adverse environmental impacts would result from it's use.

Mr. Fancy, I appreciate you and your staff's time and consideration of our proposal and look forward to discussing it with you, either by phone or in another meeting. in the near future. If you or your staff have any questions on the materials provided, please contact either me at (703) 222-0445 or Tom Davis at ECT (904) 336-0444.

Sincerely,

*Patricia A. Haslach*  
Patricia A. Haslach  
Environmental Manager

Attachments

cc:w/attach: Tom Davis, ECT  
Jeff Meling, ECT  
George Schott, Westinghouse  
Don Fields, Mission

*C. Fancy*  
*C. Halladay*  
*D. Thomas*  
*D. Hargreaves*  
*D. Hargreaves*

**Bellingham Cogeneration Plant  
Emission Test Summary**

Date: 08/30/91

Fuel: Natural Gas

Turbine No. 1

PARAMETER	Emission Limit	Run 1	Run 2	Run 3	Test Average
<b>Operating Parameters</b>					
Volumetric Air Flow (ACFM)		961,111	990,923	979,606	977,213
(DSCFM)		617,755	652,040	641,507	637,101
Oxygen (%) dry basis		14.93	14.91	14.86	14.90
Carbon Dioxide (%) dry basis		3.20	3.23	3.27	3.23
Moisture (%) Flue Gas		14.10	12.40	13.40	13.30
Dry Bulb/Wet Bulb (°F)		88.0/74.0	88.0/74.0	84.0/75.8	86.67/74.60
<b>Total Suspended Particulates (TSP)*</b>					
(lbs/hour)	6	5.21	5.21	3.13	4.52
(lbs/MMBtu, HHV)	0.0047	0.0046	0.0049	0.0029	0.0041
<b>Sulfur Dioxide**</b>					
(lbs/hour)	2	0.0	0.0	0.0	0.0
(lbs/MMBtu, HHV)	0.0016	0.0	0.0	0.0	0.0
<b>Nitrogen Oxides</b>					
(lbs/hour)	110	99.53	99.50	98.30	99.11
(lbs/MMBtu, HHV)	0.0859	0.0809	0.0773	0.0770	0.0784
(ppmvd @ 15% O <sub>2</sub> )	---	22.23	20.98	20.89	21.37
(ppmvd @ 15% O <sub>2</sub> ) ISO	25	24.72	23.30	24.52	24.18
<b>Carbon Monoxide</b>					
(lbs/hour)	66	2.33	2.16	2.01	2.17
(lbs/MMBtu, HHV)	0.0516	0.0018	0.0017	0.0016	0.0017
(ppmvd @ 15% O <sub>2</sub> )	25	0.81	0.71	0.70	0.74
<b>Total Hydrocarbons (as carbon)</b>					
(lbs/hour)	5.5	1.20	0.71	0.88	0.93
(lbs/MMBtu, HHV)	0.0043	0.0010	0.0005	0.0007	0.0007
(ppmvd @ 15% O <sub>2</sub> )	---	1.03	0.57	0.71	0.77
Opacity (%)	10	0.0	0.0	0.0	0.0
* These tests completed September 21, 1991 - see plant operating data for this date.					
** Calculated from fuel analysis					

**Bellingham Cogeneration Plant  
Emission Test Summary**

Date: 08/29/91

Fuel: Natural Gas

Turbine No. 2  
BASE LOAD TESTS

PARAMETER	Emission Limit	Run 1	Run 2	Run 3*	Test Average
<b>Operating Parameters</b>					
Volumetric Air Flow (ACFM)		873,531	949,959	979,990	934,493
(DSCFM)		600,798	623,052	653,839	625,896
Oxygen (%) dry basis		14.71	14.72	14.77	14.73
Carbon Dioxide (%) dry basis		3.37	3.37	3.38	3.37
Moisture (%) Flue Gas		9.40	13.30	12.30	11.60
Dry Bulb/Wet Bulb (°F)		87.0/71.5	85.0/71.0	85.0/73.0	85.7/71.8
<b>Total Suspended Particulates (TSP)</b>					
(lbs/hour)	6	1.42	1.47	7.12	3.34
(lbs/MMBtu, HHV)	0.0047	0.0012	0.0012	0.0054	0.0026
<b>Sulfur Dioxide**</b>					
(lbs/hour)	2	0.0	0.0	0.0	0.0
(lbs/MMBtu, HHV)	0.0016	0.0	0.0	0.0	0.0
<b>Nitrogen Oxides</b>					
(lbs/hour)	110	92.10	91.85	93.68	92.54
(lbs/MMBtu, HHV)	0.0859	0.0750	0.0724	0.0709	0.0728
(ppmvd @ 15% O <sub>2</sub> )	---	20.40	19.65	19.25	19.77
(ppmvd @ 15% O <sub>2</sub> ) ISO	25	21.85	21.18	21.40	21.48
<b>Carbon Monoxide</b>					
(lbs/hour)	66	1.16	0.84	1.35	1.12
(lbs/MMBtu, HHV)	0.0516	0.0010	0.0007	0.0010	0.0009
(ppmvd @ 15% O <sub>2</sub> )	25	0.42	0.29	0.46	0.39
<b>Total Hydrocarbons (as carbon)</b>					
(lbs/hour)	5.5	0.955	1.072	1.687	1.238
(lbs/MMBtu, HHV)	0.0043	0.0008	0.0008	0.0013	0.0010
(ppmvd @ 15% O <sub>2</sub> )	---	0.81	0.88	1.33	1.01
Opacity (%)	10	0.0	0.0	0.0	0.0
* Particulate Run No. 3 completed 08/29/91 Runs 1 and 2 completed 09/22/91 ** Calculated from fuel analysis See plant operating data from this date.					



## **Attachment I**

### **Review of SCR Costs**

Comments on the documents provided by FDER regarding SCR costs are provided as follows:

- A. Norton Chemical Process Products Corporation letter to FDER dated May 20, 1992.

#### **Capital Costs**

SCR purchased equipment cost (PEC) is estimated by Norton to be "on the order of" \$2,000,000 for a Westinghouse W501D combustion turbine. This estimate is in close agreement with the \$2,275,000 value provided in the February 1992 permit application. Installation cost is estimated by Norton to be 50% of the PEC. Data provided in the February 1992 permit application estimated installation costs to be 30% of PEC (excluding site preparation) using recommended EPA OAQPS factors. The original estimate is therefore conservative (i.e., under-estimates installation costs) in comparison to the Norton data. Total capital costs, using the Norton data, is calculated to be \$3,000,000.

It is noted that Norton did not consider indirect costs (engineering, construction & field expenses, contractor fees, start-up, performance tests, and contingencies) or interest during construction in their discussion of capital costs. These costs, which were estimated in the permit application using EPA OAQPS recommended factors, will increase direct capital costs by approximately 50% for a total of \$4,500,000. The Norton capital cost data, when adjusted for indirect costs and interest during construction, is consistent with the February 1992 application estimate of \$4,717,075.

#### **Annual Operating Costs**

Norton indicates a catalyst replacement frequency for SCR systems installed on gas-fired combustion turbines to be from 2 to 5 years. The SCR catalyst replacement frequency of 3 years premised in the Auburndale project permit application is therefore consistent with the Norton data. Catalyst replacement cost is estimated by Norton to be "on the order of" \$600,000 which is lower than the \$1,170,000 value provided by Westinghouse. It is believed that Norton has significantly under-estimated catalyst replacement costs; use of a correlation obtained from the Ellison paper yielded an estimated catalyst cost of \$1,758,006 for the Westinghouse W501D turbine which exceeds the estimate of \$1,170,000 contained in the February 1992 permit application. It is noted that SCR catalyst

**Attachment I**  
**Review of SCR Costs**  
**(continued)**

varies in quality and price which may explain the different cost estimates. In addition, the Norton estimate does not appear to include labor costs associated with catalyst replacement.

Norton did not consider a number of other costs associated with the operation of a SCR system, including labor and material, catalyst inventory and disposal, utilities (electricity and ammonia), energy penalties, and indirect costs (overhead, administration, property taxes, insurance, capital recovery). These additional costs would significantly increase total annual operating expenses.

- B. Paper by Ellison Consultants prepared for the Manufacturers of Emission Controls Association dated July, 1991.

**General**

The Ellison paper suggests that SCR costs can be estimated using empirical correlations. The correlations (least squares curve fits) were developed based on questionnaires completed by U.S. SCR vendors. It is noted that foreign SCR vendors (Hitachi, Mitsubishi, Kawasaki, etc.) dominate the U.S. SCR market. *Exclusion of these vendors from the Ellison survey is felt to be a major deficiency.*

Without having access to the underlying data, it is not possible to confirm the accuracy of the correlations or to assess the "scatter" of the data; i.e., the paper did not include any discussion of the variability of the data, correlation coefficients, etc.

The Ellison correlations are stated to be applicable to exhaust flow rates of 100 to 700 pounds per second (lb/sec). The exhaust flow rate for the Westinghouse W501D turbine planned for the Auburndale project is 875 lb/sec, which is outside of the applicable range of the Ellison correlations.

**Attachment I**  
**Review of SCR Costs**  
**(continued)**

**Capital Costs**

Excluding installation cost and site preparation, purchased equipment costs for a SCR system using the Ellison paper correlation for natural gas firing and 80% control efficiency yields a result which is in close agreement with the estimate provided in the February 1992 permit application:

Ellison Correlation (\$)	February 1992 Application (\$)
2,170,687	2,275,000

The Ellison paper installation cost correlation yields an estimate which is only 8.4% of the PEC. This is believed to be a significant under-estimation and is in conflict both with EPA OAQPS factors (30% of PEC) and the Norton vendor estimate (50% of PEC).

The Ellison paper discussion of capital costs omits a number of significant cost items which should be considered; i.e., site preparation, indirect costs (engineering, construction & field expenses, contractor fees, start-up, performance tests, and contingency), and interest during construction. Inclusion of these costs will increase the direct capital cost estimate by approximately 50%.

**Annual Operating Costs**

There are several premises stated in the Ellison paper which have a major impact on annual operating costs. These premises include: (1) frequency of catalyst replacement of 8 and 5 years for gas and oil firing, respectively, (2) calculation of cost effectiveness (\$/ton) based on reducing NO<sub>x</sub> from 42/65 ppmvd to 8.4/13 ppmvd for gas and oil firing, respectively, and (3) a capital recovery factor (CRF) of 11%.

Cost associated with catalyst replacement is a significant component of SCR operating expenses. The frequencies cited in the Ellison paper are felt to be extremely optimistic and are in conflict with the Norton letter data. A catalyst replacement frequency of every 3 years for gas firing is considered to be typical.

**Attachment I**  
**Review of SCR Costs**  
**(continued)**

Use of a 42/65 ppmvd baseline instead of a 25/42 level will result in significant differences in cost effectiveness in terms of dollars per ton of NO<sub>x</sub> removed. The Auburndale permit application provided an estimate of incremental cost effectiveness using a 25/42 ppmvd baseline and SCR controlled rates of 9/13 for gas and oil firing, respectively consistent with previous BACT analyses reviewed and approved by the FDER.

The CRF is a function of interest rate and project life and will vary from project to project. As stated in the February 1992 permit application, an interest rate of 13.5% and control system life of 15 years was premised for the Auburndale project which results in a CRF of 15.9%. The 11% CRF used in the Ellison paper is felt to be too low, adding to their under-estimation of annual costs.

The Ellison correlation for annual operating costs also omits consideration of energy penalties, downtime for catalyst replacement, and indirect costs including overhead, administrative charges, property taxes, insurance, and contingencies.

Due to the differences in catalyst replacement frequency, baseline emissions, CRF, and omission of indirect and other operating costs, estimates of annual operating costs would be expected to be much lower using the Ellison correlations. As stated previously, the catalyst replacement frequencies cited in the Ellison paper are unreasonably optimistic and inconsistent with other vendor data.

**C. Conclusions**

In conclusion, the SCR costs previously submitted to the FDER for the Auburndale project are felt to be reasonable estimates of actual costs. The cost estimates provided in the application are generally consistent with the Norton letter estimates and prior BACT analyses submitted to FDER. The Ellison study is felt to be flawed due to the omission of foreign SCR vendors from their survey, use of unreasonable premises with respect to installation costs and catalyst replacement frequency, use of different baseline emission levels, and omission of significant energy penalty and indirect costs.

## ATTACHMENT II

### AUBURNDALE POWER PARTNERS NOx AND FUEL OIL BACT COMPLIANCE PROPOSAL

#### SPECIFIC CONDITIONS:

##### Emission Limits

1. The maximum allowable emissions from this facility shall not exceed the emission rates listed in Table 1.
2. Initial NOx emission rates for natural gas firing shall not exceed 25 ppm at 15% oxygen on a dry basis. The permittee shall achieve NOx emissions of 15 ppm at 15% oxygen at the earliest achievable date based on steam injection technology, but no later than five years from permit issuance date.

##### Operating Rates

3. This source is allowed to operate continuously (8760 hours per year).
4. This source is allowed to use natural gas as the primary fuel and low sulfur No. 2 distillate oil as the secondary fuel (with the conditions specified in Specific Condition 5 below).
5. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:
  - Maximum low sulfur No. 2 fuel oil consumption for the facility shall be allowed for the equivalent of 18 months (13,140 hours) of the initial facility operation, or until the FGT Phase III expansion is complete and natural gas is available; whichever occurs first.
  - Once the FGT Phase III expansion is complete and natural gas is available to the facility, low sulfur No. 2 fuel oil firing shall be limited to 400 hours annually.
  - Maximum sulfur content in the low sulfur No. 2 fuel oil shall not exceed 0.05 percent by weight.

##### Compliance Determination

6. Steam injection shall be utilized for NOx control. The water to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. In addition, the Permittee shall install a duct module suitable for future installation of SCR equipment.

TABLE 1  
ALLOWABLE EMISSION LIMITS  
COMBINED CYCLE COMBUSTION TURBINE

Pollutant	Standards		Gas Turbine and HRSG Tons/Year		Basis
	Gas Firing	No. 2 Oil Firing	Gas	Oil	
NOx (1994 - 1997)*	25 ppm at 15% oxygen on a dry basis	42 ppmv at 15% oxygen on a dry basis			BACT
NOx (1997 onward)*	15 ppm at 15% on a dry basis	42 ppmv at 15% oxygen on a dry basis			BACT
SO2	Natural gas as fuel	0.05 percent S by weight			exceeds BACT requirements
<p>* 15 ppm must be met at the earliest possible date, given the state of development of the turbine vendors combustor; but no later than 5 years after facility startup. Permittee shall install SCR after 5 years if 15/42 ppm requirements cannot be met.</p>					



Environmental Consulting & Technology, Inc.

*Can letter only  
See Storage Cabinet for  
Complete response. EJ*

May 15, 1992  
ECT No. 91077-0400

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

RECEIVED

MAY 19 1992

Bureau of  
Air Regulation

Re: Auburndale Cogeneration Project, PSD-FL-185, AC 53-208321

Dear Mr. Fancy:

This letter is in follow-up to Environmental Consulting & Technology, Inc.'s (ECT's) letter to you dated April 27, 1992. This letter provides the response to issue (13), which was contained in your correspondence dated March 10, 1992.

#### AIR QUALITY ANALYSIS

(13) *Please evaluate the impact of this project on the Class I Chassahowitzka National Wilderness Area. This evaluation should include an SO<sub>2</sub> and NO<sub>x</sub> PSD Class I increment analysis and an air quality related values analysis (AQRV). The AQRV analysis should at least include the impacts of all PSD significant pollutants that are to be emitted by the project. Additionally, the National Park Service has informed the Department verbally that the AQRV analysis should include not only PSD significant impacts, but also the impacts of all pollutants, including toxics, that are to be emitted by the project. The AQRV analysis includes impacts to visibility, soils, vegetation, and wildlife.*

- a. As a preface to the response to this request, Auburndale Power Partners has made a decision to voluntarily reduce the sulfur content of No. 2 fuel oil used by this facility from a maximum of 0.2 percent to a maximum of 0.05 percent. This good-faith decision will have the very positive effect of reducing overall emissions of sulfur-bearing compounds from the facility. Specifically, the maximum hourly sulfur dioxide (SO<sub>2</sub>) emission rate will be reduced from 275.1 pounds per hour (lb/hr) (see Table 2-4 on page 2-9 of the original application) to 68.8 lb/hr. The maximum hourly sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) emission rate will be reduced from 35.6 lb/hr (see Table 2-6 on page 2-11 of the original application) to 8.9 lb/hr. Annual

P.O. Box 8188  
Gainesville, FL  
32605-8188

5200 Newberry Road  
Suite E-1  
Gainesville, FL  
32607

(904)  
336-0444

FAX (904)  
335-0373

G-ELDOR.3/JLM0515-051592



Environmental Consulting & Technology, Inc.

RECEIVED

APR 28 1992

Bureau of  
Air Regulation

April 27, 1992  
91077-0400

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

Re: Auburndale Cogeneration Project  
PSD-FL-185, AC 53-208321

Dear Mr. Fancy:

Receipt is acknowledged of your correspondence dated March 10, 1992, regarding the above referenced project. Responses to the issues raised in your letter are provided as follows:

BACT ANALYSIS

- (1) *Section 4.5.2.2: What is the net energy penalty in millions cu. ft. of natural gas per year for the proposed steam injection and advanced combustor technology? Show the basis of this calculation.*

Net energy penalty associated with steam injection and advanced combustor technology is calculated to be equivalent to the use of 718.89 MM ft<sup>3</sup> per year of natural gas. Details of this calculation are shown on Attachment I.

- (2) *Section 4.5.2.3: What is the cost effectiveness (\$/tons NO<sub>x</sub> removed) of the proposed steam injection and advanced combustor technology?*

Cost effectiveness of steam injection and advanced combustor design is calculated to be \$2,814 per ton of NO<sub>x</sub> removed. Details of this calculation are shown on Attachment II.

P.O. Box 8188  
Gainesville, FL  
32605-8188

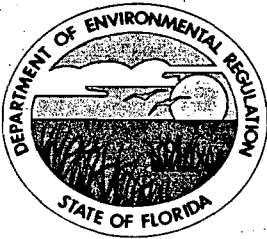
5200 Newberry Road  
Suite E-1  
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(904)  
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FAX (904)  
335-0373

G-ELDOR.3/0427JLM.1





# Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

March 10, 1992

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mrs. Patricia A. Haslach, Environmental Manager  
Auburndale Power Adventures Limited Partnership  
12500 Fair Lakes Circle, Suite 420  
Fairfax, Virginia 22033

Dear Mrs. Haslach:

Re: PSD-FL-185, AC 53-208321

The Department has received the application for a permit to construct a 150 MW cogeneration system at the Auburndale Power Adventures facility in Auburndale, Polk County, Florida. Based on our initial review of your proposal, we have determined that additional information is needed in order to process this application. Please complete the application by supplying the information requested below:

## BACT ANALYSIS

Section 4.5.2.2. (1) What is the net energy penalty in millions cu. ft. of natural gas per year for the proposed steam injection and advanced combustor technology? Show the basis of this calculation.

Section 4.5.2.3. (2) What is the cost effectiveness (\$/tons NO<sub>x</sub> removed) of the proposed steam injection and advanced combustor technology? (3) What is the efficiency of this turbine? Calculate  $\eta$  (refer to the NSPS, Subpart GG). (4) What is the low heating value of the fuel? Calculate NO<sub>x</sub> emissions based on the LHV of the fuel. Attach the basis of this calculation (ppmv, lb/MMBtu, lb/hr, tpy).

## GENERAL

(5) Submit a flow diagram of the proposed cogeneration system. Include the stacks associated with this system. (6) Submit a manufacturer's specifications manual for the proposed Westinghouse 501D5 combustion turbine, if available.

Heat Recovery Steam Generator (HRSG): (7) Submit manufacturer's name, model number, generator name plate rating (gross MW), maximum steam production rate (lb/hr and/or horsepower).

Mrs. Patricia A. Haslach  
Page 2 of 2

Steam Turbine Generator: (8) What is the nominal power (MW) output of this steam turbine? (9) What is the steam input to this turbine?

Storage Tanks: (10) What is the estimated annual throughput and type of air pollution control? (11) What are the estimated emissions?

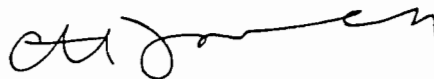
Pollutant Information: (12) Show basis of emission rate calculations (lb/hr, TPY, lb/MMBtu) for each one of the pollutants considered in this project using the low heating value of the fuel (LHV) and percentage loads.

#### AIR QUALITY ANALYSIS

(13) Please evaluate the impact of this project on the Class I Chassahowitzka National Wilderness Area. This evaluation should include an SO<sub>2</sub> and NO<sub>x</sub> PSD Class I increment analysis and an air quality related values analysis (AQRV). The AQRV analysis should at least include the impacts of all PSD significant pollutants that are to be emitted by the project. Additionally, the National Park Service has informed the Department verbally that the AQRV analysis should include not only PSD significant impacts, but also the impacts of all pollutants, including toxics, that are to be emitted by the project. The AQRV analysis includes impacts to visibility, soils, vegetation, and wildlife.

Should you have any questions on this matter, please contact Teresa Heron (review engineer) or Cleve Holladay (meteorologist) at (904) 488-1344 or write to me at the above address. The processing of your application will continue once this information is received.

Sincerely,



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

CHF/TH/plm

c: Thomas W. Davis, P.E.  
Bill Thomas, SWD



Environmental Consulting & Technology, Inc.

February 7, 1992  
91-077-0400

RECEIVED  
DER - MAIL ROOM  
1992 FEB 10 AM 9:28

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

Re: Permit Application for the Auburndale Cogeneration Project:

Dear Mr. Fancy:

Enclosed are five copies of the referenced permit application. The application requests the authority to construct a nominal 150-megawatt cogeneration facility near Auburndale, Polk County, Florida.

Contained within the application are analyses of control technologies and air quality impacts. These analyses were completed consistent with protocols that were presented to and discussed with your staff.

The project is subject to review under the regulations pertaining to prevention of significant deterioration. Therefore, an application fee in the amount of \$7,500 is enclosed.

After your staff has had the opportunity to review the application, we request the opportunity to meet in Tallahassee to discuss any issues that may need to be addressed. We will contact you within the next 2 weeks to arrange the meeting.

Sincerely,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Jeffrey L. Meling, P.E.  
Senior Engineer

JLM/tsw

Enclosures

cc: P. Haslach, Mission Energy, w/enclosures

*J. T. Leron*  
*G. Halladay*  
*B. Thomas, SA Dist*  
*G. Harlan, EPA*  
*P. Lunn, NPS*

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