

FT PIERCE MEETING
JUNE 4, 1991

<u>NAME</u>	<u>REPRESENTING</u>	<u>TELEPHONE</u>
PRESTON LEWIS	DER TALLAHASSEE	(904) 488-1344
BARRY ANDREWS	" "	" "
TOM RICHARDS	Ft Pierce Utilities Auth.	(407) 464-5600
STEVE DAY	Black & Veatch	913-339-2880
CAROL FORTHMAN	DER - OGC	904/488-9730
PAUL COMER	DER OGC	904/488-9730
PETER CUNNINGHAM	FT. PIERCE UTILITIES AUTH.	904/222-7500
JACK MILLER	Black & Veatch	(913) 339-7199
GARY PERKO	Ft. Pierce Util Auth	904/222-7500
H. LAMB	Ft P Util Auth	407-464-5792
G. SMALLRIDGE	DER/OGC	(904) 488-9730
JOE Mc CORMICK	PSC - Gas Regulation	904 488-8501
BOB TRAPP	PSC - Electric & Gas Div.	904 488-8501

* STEPHANIE BROOKS ON TELECONFERENCE PHONE

JT Pierce

Concerns of utility

1. What needs to allow #6, #7, and #8 to burn oil under some circumstances.

2. Concern about the

Backhaul of JT Pierce

23000 Customers

interconnects FPL and Vero Beach

Unit 6 16 MW oil & Gas

7 33 MW " "

8 56 MW

9 31 MW

Francis Combined Cycle

10 MW St Lucie

20 MW

Contract 4 MW FPL

Peak - 100 MW with 89 110 MW

Per Stephanie Brooks

JT Pierce gave up burning of oil to burn only Gas ~~and~~ for two main reasons:

- They did not want to do ambient monitoring
- They did not want to go through a full NIS PS review when #9 application for operating permit was received.

Coal failure

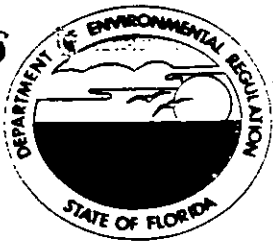
Emergency situation - Contracted gas oil backup from contract for gas and purchase power

Gas Contract request were only partially filled and was not JT Pierce's responsibility.

DER appears to be willing to
modify the #6, 7 and 8 permit to allow
the burning of fuel oil when gas is
contained and purchased power is unavailable.

# 9	Cont. Permit	old
# 9	operating Permit	old
# 9	"	NEW

#6, 7 8	oper permits	NEW
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Florida Department of En

Twin Towers Office Bldg. • 2600 Blair Stone
Lawton Chiles, Governor

Stephanie Comments

20% opacity height
for one 6 minute
per hour during which
opacity shall not exceed
27% - agree with
the terms.

FAX TRANSMITTAL LETTER

DATE: 5/9/91

TO:

NAME: STEPHANIE BROOKS
AGENCY: DER - SOUTHEAST DISTRICT
TELEPHONE: (305) 765 4109 964 1275 (407) 433 2666
OF PAGES (INCLUDE COVER SHEET): 7

FROM:

NAME: PRESTON LEWIS
AGENCY: DER - TALLAHASSEE
IF ANY PAGES ARE NOT CLEARLY RECEIVED, PLEASE CALL IMMEDIATELY. PHONE NO. (904) 488-1344
SENDER'S NAME: Preston Lewis
COMMENTS: _____

CAN YOU GIVE ME COMMENTS?
a telephone call

Preston - 8-9730 - 5/7
What do you & Gary Smalridge think of this
new?
How is permit coming, so maybe we don't
have to do this?
Clair

Clair
Fyzi + handling
Judy
5/7/91

5-22-91

8:55am

Barry,

Carol Forthman called.

RE: Request for emergency
Order for Fort Pierce
Oil.

She would like for you to
send her a copy of it.

ASAP.

Pat

Pat
5/22/91

DRAFT

To: Clair Fancy

Thru: Barry Andrews

From: Preston Lewis

Subj: Emergency Order For Burning Fuel Oil at FT Pierce

The May 2 letter and petition from Ft. Pierce Utilities Authority requesting permission to burn oil is likely to be only one many Florida utility request as demand for power increases compared to the generating capacity.

In order to lighten the burden upon the Secretary, the following procedure is proposed:

1. Delegate the authorization for emergency orders to use alternate fuels to the DER ~~District-Deputy Director~~ ^{ASSISTANT} *Assistant Secretary*. The District is in a much better position to determine not only the need but also the impact upon air quality. The District is more familiar with the utility and the specifics of the emergency request.
2. The request should be accompanied by a certified statement (possibly a fax) from the natural gas supplier stating the specifics of the requesting utility curtailment and the expected duration.
3. The request should also be accompanied by a certified statement (possibly a fax) from the power pool stating that purchased power is unavailable for the requesting utility.
4. The requesting utility should also provide a clear statement of the need, the expected number of hours using fuel oil and the sulfur content of the fuel. Include also an year to date history of fuel oil usage by unit, providing the dates, sulfur content of the fuel.
5. Each source should be limited to a maximum of 400 hours per year using the lowest sulfur fuel available.

Robert L.

Bob Trapp,

Public Service Commission

101 E. Gaines St.

Tell

32-399-0868

In response to your conversation with Carol Fotherman
066, day ^{a copy of} IT Pierre's request for ^{all} energy only to be paid. Do ^{including} all other
document on IT Pierre.

We are attempting to confirm IT Pierre's
inability to purchase power from the
power pool in the ^{EVENT} of natural gas
curtailment.

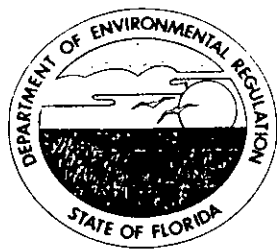
Please provide an expedient response
and should you have questions, call

Sincerely,

M. Preston Turner, Jr.

cc

Teresa's Copy



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

April 18, 1990

Mr. Harry Schindehette
Director of Utilities
Ft. Pierce Utilities Authority
P. O. Box 3191
Ft. Pierce, Florida 33440

Dear Mr. Schindehette:

Re: 31.6 MW Combined Cycle Gas Turbine

As per Ms. Stephanie Brooks' request, your permit AC 56-141460 will be modified as follows:

Specific Condition No. 1

FROM:

1. The maximum emission rates for the 31.6 MW combined cycle gas turbine during natural gas firing shall not exceed the limits required by 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, as follows:

Nitrogen oxides NSPS Standards = $0.0075 \left(\frac{14.4}{Y} \right) + F$

or
= 84 ppm NOx
and

Sulfur dioxide NSPS Standard = 0.015% by volume at 15% oxygen on a dry basis

Visible Emission Not to exceed 15% opacity

Fuel Oil No. 2 Not to exceed 0.5% sulfur content by weight

TO:

1. The maximum emission rates for the 31.6 MW combined cycle gas turbine during natural gas firing shall not exceed the limits required by 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, as follows:

Mr. Harry Schindehette
 Page 2
 April 18, 1990

Nitrogen oxides NSPS Standards = $0.0075 \frac{(14.4)}{Y} + F$

or
 = 84 ppm NOx
 and

Sulfur dioxide NSPS Standard = 0.015% by volume at 15% oxygen on a dry basis

Visible Emission Not to exceed 15% opacity.

Fuel Oil No. 2 Not to exceed 0.5% sulfur content by weight

Carbon Monoxide Not to exceed 32.85 lbs/hr and 110.4 tons/yr

Specific Condition No. 8

FROM:

The operating permits for this facility shall be modified as follows:

Parameter	Unit 6		Unit 7		Unit 8	
	lbs/hr	ton/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Part.	0.04	0.0024	0.568	0.382	0.945	3.017
SOx	12.38	0.0743	0.1199	0.0806	0.1917	0.617
NOx	1.31	0.007854	104.35	70.126	173.20	552.86
VOC	0.0236	0.000142	0.266	0.179	0.441	1.407
CO	0.15	0.0009	7.589	5.100	12.59	40.20
hrs/yr	12		1344		6384	

TO:

The operating permits emission limits for this facility's existing boilers shall not exceed the following rates:

Parameter	Unit 6		Unit 7		Unit 8	
	lbs/hr	ton/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Part.	0.4	0.0024	0.568	0.382	0.945	3.017
SOx	12.38	0.0743	0.1199	0.0806	0.1917	0.617
NOx	1.31	0.007854	104.35	70.126	173.20	552.86
VOC	0.0236	0.000142	0.266	0.179	0.441	1.407
CO	0.15	0.0009	7.589	5.100	12.59	40.20
hrs/yr	12		1344		6384	

The operating permits emission limits for these boilers (units No. 6, 7, and 8) shall be modified as stated above.

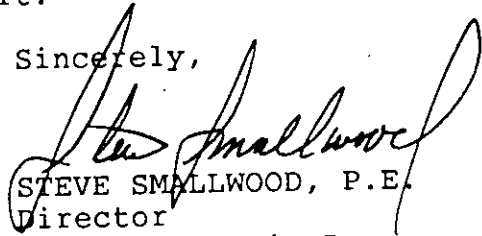
Mr. Harry Schindehette
Page 3
April 18, 1990

Attachment to be Incorporated

Ms. Stephanie Brooks' request

This letter must be attached to the above mentioned permit and shall become a part of the permit.

Sincerely,


STEVE SMALLWOOD, P.E.
Director
Division of Air Resources
Management


SS/TH/plm



State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Routing To Other Than The Addressee	
To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

Interoffice Memorandum

TO: Stephanie Brooks
FROM: Clair Fancy. 
DATE: April 23, 1990
SUBJ: 31.6 MW Combined Cycle Gas Turbine
AC 56-141460

In response to your telephone conversation with Mr. Jim Pennington on April 2, 1990, we are modifying permit AC 56-141460.

An emission limit will be included as a specific condition for the CO pollutant. The Bureau will modify specific condition No. 1 by adding the following sentence:

Carbon monoxide emissions shall not exceed 32.85 lbs/hr and 110.4 tons/yr when burning natural gas.

This limit for CO was the basis for the rule applicability and it is the same emission limit that the company proposed.

In addition, you also requested we clarify condition No. 8. This condition calls for modification of the permit for units No. 6, 7, and 8. You indicated this condition does not give emission limits.

The Bureau's intent was to make emissions from boilers No. 6, 7, and 8 federally enforceable since the reduction of emissions from these boilers (net emission change) were credited to the combined cycle gas turbine (unit No. 9) project. The new emission limits are as stated in specific condition No. 8 (units are lbs/hr, tons/yr and hrs/yr) of permit AC 56-141460.

It should also be noted that particulate emissions from unit No. 6 need to be changed from 0.04 lbs/hr to 0.4 lbs/hr (this appears to be a typographical error).

The existing boilers' compliance schedule, specific conditions, and operating limitations (excepting the new emission limits) should remain the same as stated in the current operating permits.

CHF/TH/plm

Environmental Policy and Technology

St. Pierre 1/21/91

Clara H. has reviewed and is satisfied with the modeling information provided by the City of St. Pierre.

All can issue an OK to

Doug Snallridge to allow burning

of #6 fuel w/ .80 LBS SO₂ / 10⁶ BTU (.75% Sulfur)

on units #6 and #8. #7 unit uses Higher Sulfur FUEL 2.75 LBS/10⁶ BTU (possibly 2.5%).

Director
BARRY

~~Need to issue permit out #9~~

~~Review permits for #6, #7, #8 request for updated operations~~

#6 BACT only one Done

* ① Cindy will do

Emergency oil use or #6, #7, #8 limited # ft²/hr and specifying sulfur content of fuel

see same format -
TROPICANA
5000 CT

ORLANDO UTIL

write up the permit
for #9 unit

Department of Environmental Regulation
Routing and Transmittal Slip

Name, Office, Location)

1. BILL THOMAS
2. TERESA HERON
- 3.
- 4.

Remarks:

STEPHANIE BROOKS CALLED ABOUT THE FT. PIERCE UTILITIES CONSTRUCTION PERMIT AC 56-141460. SHE SAID THAT CONDITION 3 ~~5~~ REQUIRES TESTING FOR CO WITH METHOD 10, BUT THERE IS NO CO STANDARD FOR UNIT 9. SHE ALSO SAID THAT CONDITION 8. DOES NOT GIVE EMISSION LIMITS ~~FOR~~ FOR UNITS 6, 7 & 8, BUT RATHER MODIFIES THE PERMIT, ONLY. PLEASE REVIEW AND DISCUSS WITH STEPHANIE. THANKS

From

Jim P.

Date

4/2/90

Phone

44

Spoke to

1/16/91

Barron and Cleve on Ft Pierce

Don Nelson ^{B&V} informed me that
Cleve H. had received ^{nothing}
data ^{but not} requested in Chair's December '90
and Jan '91 letters for ^{FT PIERCE} 6, 7, 8 or oil
and #9 Natural Gas.

I was not aware of any
info from B&V on this visit other
than the item you gave me (minutes of 11/19/90).
I should ~~know~~ ^{if they could} copy me for cover letters or
~~can you~~ info so I can stay up ^{on} the
Project?

Howls
Petro

^{GP} Called
1/16/91 DAN NELSON, LICENSING COOR

(913) 3392149

B + V Kansas City

71 Prime Licensing

WATER
ELECTRIC



GAS
SEWER

206 S. SIXTH STREET • P. O. BOX 3191 • FORT PIERCE, FLORIDA 34948 • PHONE (407) 464-5600

January 4, 1991

RECEIVED

JAN 8 1991

Florida Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, Florida 32399

DER-BAQM

Attention: Mr. C. H. Fancy, P.E.

SUBJECT: Emergency Order for Burning Oil
in Units 6, 7 and 8

REFERENCE AIR PERMITS: Unit 6 - AO-56-113534
Unit 7 - AO-56-112679
Unit 8 - AO-56-112678
Unit 9 - AO-56-175955

We have received your letter of December 26, 1990 responding to our letter of December 10, 1990 regarding the subject.

The responses to your questions and requests for additional information are as follows.

Question 1. What grade fuel will be burned in the Units? What is the maximum sulfur content of the fuel? What is the maximum ash content?

Response: No. 6 fuel oil will be fired in Units 6, 7, and 8 during emergency conditions.

Currently, two separate supplies of No. 6 fuel oil are being stored onsite with maximum sulfur contents corresponding to 2.75 and 0.80 lb SO₂/MBtu. These compliance fuels satisfy the Florida Administrative Code (FAC) SO₂ emission rates for Units 7 and 8, respectively.

The FAC does not specify an SO₂ limit for boilers the size of Unit 6. Instead the FAC states that the limit must be established by a Best Available Control Technology (BACT) determination. The BACT analysis for Unit 6 was recently submitted to the FDER and concluded that the lower sulfur No. 6 fuel oil represented BACT. Consequently, Units 6 and 8 will burn the 0.80 lb SO₂/MBtu No. 6 fuel oil and Unit 7 will burn the 2.75 lb SO₂/MBtu fuel oil.

The ash content of the fuel oil is not monitored by FPUA. Therefore, in responding to the question, it is necessary to approximate the expected particulate emission rates for the three units. The emission particulate rates for Units 6, 7, and 8 are estimated to be approximately 0.1 lb/MBtu.

Question 2. To ensure compliance with ambient air quality standards, please submit modeling of sulfur dioxide and particulate emissions for all sources at the facility, assuming the units are firing the type fuel which will be used during a natural gas curtailment.

Response: Refer to attached modeling results (Attachment A).

Question 3. Is it possible for Fort Pierce Utilities Authority to purchase power from another utility during a natural gas curtailment?

Response: In the event of a natural gas curtailment to the Fort Pierce Utilities Authority generators, replacement power from another utility would be sought. If that effort is unsuccessful, fuel oil would be burned as a last resort to meet the needs of our customers.

Weather related peak demands for power and natural gas generally coincide, and so the availability of surplus power during a weather related gas curtailment, is less likely than at other times.

Question 4. Why do you expect the supply of natural gas to be curtailed this winter? Would you burn fuel oil less than 400 hours during the year?

Response: Historically, there is a correlation between the occurrence of low temperature extremes and the unavailability of natural gas for generating electricity, particularly in a steam boiler. There is no way to predict with certainty whether cold weather of that severity will occur in South Florida this winter; however, we do expect that if extremely cold weather is experienced, we will also be subjected to an accompanying curtailment of natural gas.

Based on past experience, we would expect to burn oil less than 400 hours per year.

Florida Department of Environmental
Regulation
Mr. C. H. Fancy, P.E.

Page 3
January 4, 1991

If you need additional information or have any other comments, please
call me at (407) 464-5600, Steve Day at (913) 339-2080 or Jack Miller at
(913) 339-7199.

Very truly yours,



Harry Schindehette, P.E.
Director of Utilities

Its

cc: S. Day
B. Andrews
J. Phillips
C. M. Carter
J. L. Brown

FORT PIERCE UTILITIES AUTHORITY
ATTACHMENT A
RESPONSE TO FDER QUESTION 2

1.0 INTRODUCTION

As requested by the Florida Department of Environmental Regulation (FDER) in a December 26, 1990 letter (Question 2), this attachment summarizes the air dispersion modeling for the Fort Pierce Utilities Authority H. D. King Units 6, 7, and 8. In accordance with FDER's request, the modeling analysis examined sulfur dioxide (SO₂) and particulate matter (PM) impacts. Units 6, 7, and 8 were modeled with No. 6 fuel oil, as operated during a natural gas curtailment.

This document outlines the source parameters, modeling options, and analysis results. The results show that the combined impacts from Units 6, 7, and 8, when firing No. 6 fuel oil, do not exceed the applicable Florida Ambient Air Quality Standards (FAAQS) for SO₂ and PM.

2.0 SOURCE PARAMETERS

The modeling analysis considered the potential air quality impacts associated with Units 6, 7, and 8 when firing No. 6 fuel oil. Table 2-1 shows the operating parameters and emission rates for the three sources. Unit 9 was not considered in the analysis since Unit 9 will only be permitted to operate when firing natural gas. The stack exhaust flows and temperatures were obtained from engineering estimates related to the boiler characteristics and fuel properties. Emission rate assumptions were previously outlined in the response to Question 1 of FDER's December 26, 1990 letter.

TABLE 2-1. SOURCE CHARACTERISTICS

Emission Source:	Unit 6	Unit 7	Unit 8
X-Coordinate* (m):	-18.6	6.7	-68.0
Y-Coordinate* (m):	36.3	33.8	18.3
Exhaust Flow (acfm):	64,440	138,300	190,290
Stack Exit Diameter (ft):	5.0 <i>1.52</i>	7.1 <i>2.16</i>	8.0 <i>2.44</i>
Stack Exit Velocity (fpm):	3,282 <i>16.67 m/s</i>	3,493 <i>17.74 m/s</i>	3,786 <i>19.23 m/s</i>
Stack Height (ft):	148 <i>45.11 m</i>	148 <i>45.11 m</i>	150 <i>45.72 m</i>
Stack Exit Temperature (F):	300 <i>421°K</i>	300 <i>421°K</i>	295 <i>419°K</i>
Building Height (ft):	68 <i>20.7 m</i>	68 <i>20.7 m</i>	68 <i>20.7 m</i>
Maximum Projected Width (ft):	148.6 <i>45.3 m</i>	148.6 <i>45.3 m</i>	148.6 <i>45.3</i>
Fuel Type:	No. 6	No. 6	No. 6
Max. Heat Input (MBtu/h):	219	470	611
SO ₂ Emission Rate (lb/MBtu):	0.8 <i>OK</i>	2.75 <i>✓</i>	0.8 <i>✓</i>
(lb/h):	175.2 <i>22.075 g/s</i>	1,292.5 <i>✓</i>	488.8 <i>✓</i>
PM Emission Rate (lb/MBtu):	0.1	0.1 <i>162.85 g/s</i>	0.1 <i>61.59 g/s</i>
(lb/h):	21.9 <i>OK</i>	47.0 <i>OK</i>	61.1 <i>OK</i>
	2.76	5.92	7.70

*Coordinates relative to Unit 9 stack.

70 S in #6, 8 = .75

70 S in 7 is 2.5

Unit 6 16.5 MW
 7 33 MW
 8 53 MW

3.0 MODELING ASSUMPTIONS

The following list outlines the assumptions used to perform the dispersion modeling analysis.

- o The EPA approved ISCST model was used for all modeling. ✓
- o Five years (1982 - 1986) of surface and upper air meteorological data from West Palm Beach were used with the ISCST model. ✓
- o Receptors were placed along the 36 standard directions surrounding the Unit 9 stack at the following downwind distances: 100-meter intervals from 100 to 1,000 meters, 250-meter intervals from 1,250 to 3000 meters, and 1,000-meter intervals from 4,000 to 10,000 meters. Discrete receptors were placed at the boundary that restricts public access along the 36 radial directions.
- o The rural modeling option was considered representative of the site. ✓
- o All EPA default modeling options were selected. ✓
- o The modeled highest concentration was selected for annual averaging periods and the highest, second-highest concentration was selected for 3- and 24-hour averaging periods. ✓
- o A GEP analysis showed that the Huber-Snyder building downwash algorithm was appropriate for all wind directions. ✓

4.0 DISPERSION MODELING RESULTS

Table 4-1 shows the maximum modeled SO₂ and TSP impacts for each modeled year. These concentrations are the combined maximum from Units 6,

TABLE 4-1. MODELED SO2 AND TSP IMPACTS FROM UNITS 6, 7, AND 8

0

Year	SO2 Conc. ug/m3	Location		Day	TSP Conc. ug/m3	Location		Day
		Dist. km	Dir. deg			Dist. km	Dir. deg	
ANNUAL (Highest)								
1982	14.7*	1.5	310	-	1.0*	1.5	310	-
1983	11.9	1.5	310	-	0.8	1.5	310	-
1984	13.1	2.0	260	-	0.9	2.0	260	-
1985	12.6	1.75	270	-	0.9	1.75	270	-
1986	14.3	1.75	270	-	1.0	1.75	270	-
24-HOUR (Second Highest)								
1982	131.5	0.2	250	291	7.3	1.25	310	208
1983	163.2	0.2	270	58	10.6*	0.3	270	58
1984	175.9*	0.2	270	23	9.2	0.2	270	23
1985	138.0	0.2	260	66	7.8	0.2	260	66
1986	104.1	2.5	270	17	6.9	2.5	270	17
3-HOUR (Second Highest)								
1982	432.6	0.2	250	88	-	-	-	-
1983	619.6*	0.3	270	20	-	-	-	-
1984	397.9	0.2	80	59	-	-	-	-
1985	490.6	0.2	260	323	-	-	-	-
1986	421.0	0.2	270	8	-	-	-	-

Handwritten notes on table:
 - Above SO2 column: 8/ about 25% of total source
 - Next to 1986 SO2: 60
 - Next to 1986 TSP: 50
 - Next to 1986 TSP: 11450
 - Next to 1986 SO2: 260
 - Next to 1986 SO2: 1300
 - Next to 1984 SO2: 3.7 ug/m³
 - Next to 1984 SO2: 176
 - Next to 1984 SO2: 620
 - Next to 1984 SO2: compare with
 - Next to 1984 SO2: compare with
 - Next to 1984 SO2: 1300

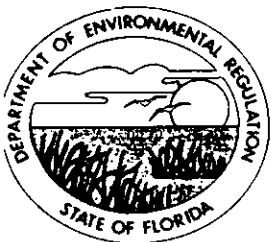
*Maximum impact.

Class II

Increment Estimated SO₂ Ann 3.7 / 20 TSP Ann.
 24-hr 43.9 / 91
 3-hr 154.9 / 512

TABLE 4-2. IMPACT COMPARISON TO FLORIDA AMBIENT AIR QUALITY STANDARDS

Averaging Period	SO ₂		Percent of Standard %	PM		Percent of Standard %
	Conc. ug/m ³	FAAQS ug/m ³		Conc. ug/m ³	FAAQS ug/m ³	
Annual	14.7	60	25	1.0	50	2
24-Hour	175.9	260	68	10.6	150	7
3-Hour	619.6	1300	48	-	-	-



Florida Department of Environmental Regulation

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

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

December 26, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Harry Schindehette, P.E.
Director of Utilities
Fort Pierce Utilities Authority
P.O. Box 3191
Fort Pierce, FL 34948

Re: Emergency Order for Burning Fuel Oil in Units 6, 7 and 8
Permit Nos. AO56-113534, 112679, 112678, and 175955

Dear Mr. Schindehette:

The Department has received your petition requesting permission to burn fuel oil in Units 6, 7, and 8 under emergency conditions. The following additional information is needed in order to process this request:

1. What grade fuel will be burned in the units? What is the maximum sulfur content of the fuel? What is the maximum ash content?
2. To ensure compliance with ambient air quality standards, please submit modeling of sulfur dioxide and particulate emissions for all sources at the facility, assuming the units are firing the type fuel which will be used during a natural gas curtailment.
3. Is it possible for Fort Pierce Utilities Authority to purchase power from another utility during a natural gas curtailment?
4. Why do you expect the supply of natural gas to be curtailed this winter? Would you burn fuel oil less than 400 hours during the year?

Please supply this information as soon as possible.

Sincerely,

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

c: I. Goldman, SED
C. Forthman, OGC
S. Day, Black & Veatch

Technical Evaluation
and
Preliminary Determination

Ft. Pierce Utilities Authority
Ft. Pierce, St. Lucie County, Florida

Original

Permit No. AC 56-141460

31.6 MW Combined Cycle Gas Turbine

APIS No. 50WPB56000309

Bureau of Air Quality Management
Central Air Permitting
New Source Review Section

February 12, 1988

I. NAME AND ADDRESS OF APPLICANT

Ft. Pierce Utilities Authority
Post Office Box 3191
Ft. Pierce, Florida 33448

II. REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: November 2, 1987

Completeness Review (30 days): Department's
letter of December 1, 1987

Response to Request for Additional Information:

Ft. Pierce Utilities Authority's letter of
December 17, 1987

Application Completeness Date: December 18, 1987

III. FACILITY INFORMATION

III.1 Facility Location

The proposed source is located on 311 North Indian river
Drive in Ft. Pierce, St. Lucie County, Florida. The UTM
coordinates are 566.8 East and 3063.3 North.

III.2 Standard Industrial Classification Code (SIC)

This facility is classified as follows:

Major Group No. - 49 ELECTRIC, GAS, AND SANITARY
SERVICES

Group No. - 491 ELECTRIC SERVICES

Industry No. - 4911 ELECTRIC SERVICES

III.3 Facility Category

Ft. Pierce Electric Utility is a major facility for
nitrogen oxides (NOx) and carbon monoxide (CO).

The proposed project will increase the overall NOx and CO
emissions by 19.7 TPY and 99.2 TPY, respectively.

III.3.1 Background Information

A revision of the current existing permits at the Ft.
Pierce facility was conducted by Environmental Science and
Engineering Inc.

It was concluded that the contemporaneous emissions calculations, as presented, are creditable in accordance with Rule 17-2.500(2)(e)4, Creditable Emissions Changes. The current operating rate for all boilers (Unit 6, Unit 7, and Unit 8) are less than the permitted rates (hours per year) listed on the operating permits. These permitted rates (hours/year) will be decreased as a result of the operation of the new combined cycle turbine (see Table 2). The current operating permits will be modified as follows:

Parameter	Unit 6		Unit 7		Unit 8	
	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
Part.	0.04	0.0024	0.568	0.382	0.945	3.017
SOx	12.38	0.0743	0.1199	0.0806	0.1917	0.612
NOx	1.31	0.007854	104.35	70.126	173.20	552.86
VOC	0.0236	0.000142	0.266	0.179	0.441	1.407
CO	0.15	0.0009	7.589	5.100	12.59	40.20
hrs/yr	12		1344		6384	

IV. PROJECT DESCRIPTION

The new source at Ft. Pierce Utility Authority will consist of a combustion turbine-generator, a heat recovery steam generator (HRSG), cooling tower, and a steam turbine-generator.

Electrical energy will be produced directly from the combustion turbine generator (23.4 MW). A significant portion of the waste heat from the products of combustion will be captured by passing the hot gas steam through a heat recovery steam generator (boiler). The steam produced will drive a smaller (8.2 MW) condensing turbine-generator.

Power produced by the facility will be transferred to the authority's transmission system via step-up transformers and the existing 69 KV substation at the power plant.

The combined cycle unit will provide baseload power to the Ft. Pierce community and the regional grid. The new unit will use natural gas as the primary fuel and No. 2 fuel oil as an emergency secondary fuel.

Emissions control will be provided by steam injection into the turbine, which will reduce NOx emissions by 65%.

V. RULE APPLICABILITY

The proposed project is subject to preconstruction review under the provisions of Chapter 403, Florida Statutes, and Chapter 17-2, Florida Administrative Code, (FAC).

The facility site is in an area, St. Lucie County, designated attainment for all pollutants in accordance with Rule 17-2.420, Florida Administrative Code (FAC).

Ft. Pierce Electric Utilities Authority is classified as a major facility. Emissions of nitrogen oxides are in the order of 776 tons per year.

This source, combined cycle gas turbine, is exempt from the New Source Review Requirements of the Prevention of Significant Deterioration, Rule 17-2.500 because the net emissions increases of NOx and CO are below the significance levels, Rule 17-2.500(2)(e)4., FAC.

This project shall be permitted under Rule 17-2.520 Sources Not Subject to Prevention of Significant Deterioration or Nonattainment Requirements. The proposed source shall comply with Rule 17-2.660 Standards of Performance for New Stationary Sources (NSPS). Specifically, Subpart GG, NSPS for Gas Turbines, Rule 17-2.610, General Particulate Emissions Limiting Standards and Rule 17-2.700 Stationary Point Sources Emissions Test Procedures.

For a future modification, this facility may be subject to a Prevention of Significant Deterioration Review, Rule 17-2.500, if the net increase of emissions of any criteria pollutant is equal to or greater than the significant emission rates listed in Table 500-2, FAC.

VI. EMISSIONS SUMMARY

The operation of the combined cycle gas turbine will produce emissions of nitrogen oxides (NOx), sulfur dioxide (SO₂), carbon monoxide (CO), particulate matter (PM), and volatile organic compounds (VOC) to the atmosphere.

Table 1 summarizes the potential to emit all pollutants regulated under the ACT which are affected by the proposed project. These permitted emissions are in compliance with all applicable requirements of Chapter 17-2, FAC.

Table 2 shows a summary of the existing and proposed emissions for this facility.

VI.1 Air Quality Analysis

From a technical review of the application, the department has determined that the installation and operation of this source will not have a detrimental impact on Florida's ambient air quality standards.

VI.2 Air Toxics Information

Currently, the Department is developing acceptable ambient concentrations for toxic substances. Specifically, sources classified as Category A (carcinogens and highly toxic substances) and Category B (moderately toxic substances).

In the event toxics emission limits are set during the term of this permit or any subsequent permit, the Department may seek modification pursuant to Rule 17-4.08, FAC.

VII. CONCLUSION

Based on the review of the data submitted by Ft. Pierce Electric Authority, the Florida Department of Environmental Regulation (FDER) concludes that compliance with all applicable state air quality regulations will be achieved provided certain specific conditions are met. The impact of installing and operating the combined cycle gas turbine at the Ft. Pierce facility will not cause or contribute to a violation of any ambient air quality standards.

Table 1
 Allowable Emission Limits
 31.6 MW Combined Cycle Gas Turbine

Pollutant	Standard	Gas Turbine (1)	Waste Heat Boiler
NOx	0.0075 $\frac{14.4}{Y} + F^{(2)}$	84 ppm (gas); 172.5 TPY 134 ppm (No. 2 oil)	
SO ₂	0.8% by weight 0.015% by volume at 15% oxygen on a dry basis	0.17 lb/hr 0.576 TPY (gas)	
PM		15% opacity	15% opacity
CO	---	32.85 lbs/hr (gas) 110.4 TPY (gas)	

(1) The combined cycle gas turbine will be operating mostly with natural gas. Diesel fuel No. 2 will be used for emergency back-up. The NOx allowance for oil burning is 50 ppm. The maximum sulfur content in the oil shall not exceed 0.5% by weight.

(2) F = 0 (NOx emission allowance for fuel-bound nitrogen). Natural gas has virtually no fuel-bound nitrogen.

Table 2

SUMMARY OF EMISSIONS
(tons per year)

PRESENT ACTUAL EMISSIONS

Pollutant	No. 6 12 hrs (0.07 wks)	No. 7 2748.6 hrs (16.3 wks)	No. 8 7262.9 hrs (43.2 wks)	6,7,8 10023.5 hrs TOTAL
Part	0.0061	0.781	3.451	4.238
SOx	0.0743	0.16485	0.70002	0.93917
NOx	0.007854	143.4134	632.338	775.760
VOC	0.000142	0.36507	1.6096	1.974
CO	0.0009	10.43	45.98	56.41

PROJECTED EMISSIONS

Pollutant	No. 6 12 hrs (0.07 wks)	No. 7 1344 hrs (8 wks)	No. 8 6384 hrs (38 wks)	No. 9 6720 hrs (40 wks)	6,7,8,9 144460 hrs TOTAL	Net Emissions Increase	Significant Emission Rate
Part	0.0024	0.382	3.017	13.44	16.841	12.607	25
SOx	0.0743	0.0806	0.612	0.567	1.334	0.395	40
NOx	0.007854	70.126	552.86	172.52	795.51	19.75	40
VOC	0.000142	0.179	1.407	12.10	13.69	11.72	40
CO	0.0009	5.100	40.20	110.4	155.7	99.29	100