Florida Power
CORPORATION

September 25, 2000

RECEIVED
SEP 26 2000
BUREAU OF AIR REGULATION

Ms. Kathy Carter
Office of General Counsel
Florida Department of Environmental Protection
Room 638
3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000

Re: Florida Power Corporation, Hines Energy Complex
REQUEST FOR EXTENSION OF TIME on the *Intent to Issue Title V Air Operation Permit*
Draft Permit No.1050234-001-AV

Dear Ms. Carter:

On December 8, 1999, Florida Power Corporation (FPC) received the above-referenced Intent to Issue Title V Air Operation Permit. A review of the permit conditions has revealed that several issues need to be resolved. Accordingly, FPC requests an enlargement of time, pursuant to Florida Administrative Code Rule 62-110.106(4), to and including November 30, 2000, in which to file a Petition for Administrative Proceedings in the above-styled matter. Granting of this request will not prejudice either party, but will further both parties mutual interest by hopefully avoiding the need to actually file a Petition for Administrative Proceeding in this matter. If the Department denies this request, FPC requests the opportunity to file a Petition for Administrative Proceeding within 10 days of such denial.

If you should have any questions, please contact Mr. Michael Kennedy at (727) 826-4334.

Sincerely,

Robert Manning

Robert A. Manning, Esq.
Hopping Green Sams & Smith

cc: Scott Sheplak, DEP
Doug Beason, DEP, OGC
9/29/00 cc: Scott Sheplak
Russell Wilder

139505.1

Florida Power
CORPORATION

July 26, 2000

RECEIVED
JUL 27 2000
BUREAU OF AIR REGULATION

Ms. Kathy Carter
Office of General Counsel
Florida Department of Environmental Protection
Room 638
3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000

Re: Florida Power Corporation, Hines Energy Complex
REQUEST FOR EXTENSION OF TIME on the *Intent to Issue Title V Air Operation Permit*
Draft Permit No.1050234-001-AV

Dear Ms. Carter:

On December 8, 1999, Florida Power Corporation (FPC) received the above-referenced Intent to Issue Title V Air Operation Permit. A review of the permit conditions has revealed that several issues need to be resolved. Accordingly, FPC requests an enlargement of time, pursuant to Florida Administrative Code Rule 62-110.106(4), to and including September 29, 2000, in which to file a Petition for Administrative Proceedings in the above-styled matter. Granting of this request will not prejudice either party, but will further both parties mutual interest by hopefully avoiding the need to actually file a Petition for Administrative Proceeding in this matter. If the Department denies this request, FPC requests the opportunity to file a Petition for Administrative Proceeding within 10 days of such denial.

If you should have any questions, please contact Mr. Michael Kennedy at (727) 826-4334.

Sincerely,

Robert A. Manning

Robert A. Manning, Esq.
Hopping Green Sams & Smith

cc: Scott Sheplak, DEP
Doug Beason, DEP, OGC
7/27/00 cc: Scott Sheplak
Russell Wider

139505.1

Florida Power
CORPORATION

June 22, 2000

RECEIVED
JUN 23 2000
BUREAU OF AIR REGULATION

Ms. Kathy Carter
Office of General Counsel
Florida Department of Environmental Protection
Room 638
3900 Commonwealth Boulevard
Tallahassee, FL 32399-3000

Re: Florida Power Corporation, Hines Energy Complex
REQUEST FOR EXTENSION OF TIME on the *Intent to Issue Title V Air Operation Permit*
Draft Permit No.1050234-001-AV

Dear Ms. Carter:

On December 8, 1999, Florida Power Corporation (FPC) received the above-referenced Intent to Issue Title V Air Operation Permit. A review of the permit conditions has revealed that several issues need to be resolved. Accordingly, FPC requests an enlargement of time, pursuant to Florida Administrative Code Rule 62-110.106(4), to and including July 31, 2000, in which to file a Petition for Administrative Proceedings in the above-styled matter. Granting of this request will not prejudice either party, but will further both parties mutual interest by hopefully avoiding the need to actually file a Petition for Administrative Proceeding in this matter. If the Department denies this request, FPC requests the opportunity to file a Petition for Administrative Proceeding within 10 days of such denial.

If you should have any questions, please contact Mr. Michael Kennedy at (727) 826-4334.

Sincerely,

Robert A. Manning

Robert A. Manning, Esq.
Hopping Green Sams & Smith

cc: Scott Sheplak, DEP
Doug Beason, DEP, OGC
6/26/00 cc: Scott Sheplak
Russ Wilder

115215.1

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

May 25, 2000

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. W. Jeffrey Pardue, CEP
Director Environmental Services
Florida Power Corporation
Post Office Box 14042, MAC BB1A
St. Petersburg, Florida 33733

Re: Request for Additional Information Regarding AC Permit Modification
FPC Hines Energy Power Block I, 1050234-002-AC

Dear Mr. Pardue:

On May 22, 2000, the Department received your request for a permit amendment to include revised heat input curves for Units 1A and 1B at Florida Power Corporation's (FPC) Hines Energy Complex. The revised heat input curves for both natural gas and oil were a result of an adjustment to improve the performance of the units.

However, in order to continue processing your application, the Department will need the below additional information pursuant to Rule 62-4.055(1), F.A.C. 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. We understand that there is an approximate 1% increase at ISO conditions in the overall maximum heat input from the original permitted limit. At the upper end of the temperature range, the maximum heat input for both natural gas and oil firing, reflect an increase of 5% or more over the current permit's curve. Please provide actual test data for both oil-firing and natural gas-firing to support such a change at the high temperature ranges.

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. As a result, at a minimum your response to Item number 1, above should be certified by a professional engineer registered in the State of Florida. Material changes to the application should also be accompanied by a new certification statement by the authorized representative or responsible official. Permit applicants are advised that Rule 62-4.055(1), F.A.C., now requires applicants to respond to requests for information within 90 days. If there are any questions, please call Russell Wider at 850/921-9585.

Sincerely,

Scott M. Sheplak, P.E.
Administrator
Title V Section

/raw

cc:
Bill Thomas, P.E., SWD

5/30/00 cc: Russell Wider
Reading File
xc: Mike Halpin

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write *"Return Receipt Requested"* on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Mr. W. Jeffrey Pardue, CEP
Director Environmental Services
Florida Power Corporation
Post Office Box 14042, MAC BB1A
St. Petersburg, Florida 33733

4a. Article Number
Z 094 212 827

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

ST. PETERSBURG, FL 33701
JUN 05 2000
CALLER SERVICE

7. Date of Delivery

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811,** December 1994 102595-98-B-0229 Domestic Return Receipt

Thank you for using Return Receipt Service.

Z 094 212 827

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to
MR - W. Jeffrey Pardue
Street & Number
Post Office BOX 14042, MAC BB1A
Post Office, State, & ZIP Code
St - Petersburg, FL 33733

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 5 30 00	

FPC-Hines Energy Power Block
I) 1050234-002-AC

PS Form **3800**, April 1995

File

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

March 23, 2000

R. Douglas Neeley, Chief
Air and Radiation Technology Branch
US EPA Region IV
61 Forsyth Street
Atlanta, Georgia 30303

Re: Request for approval of a Custom Fuel Monitoring Schedule for Florida Power Corporation - Hines Energy Complex

Dear Mr. Neeley:

Enclosed is a copy of Florida Power Corporation's (FPC) Hines Energy Complex request for approval of the use of a custom fuel monitoring schedule. FPC plans to operate two combustion turbines (CTs), 1A and 1B, that are subject to New Source Performance Standards (NSPS 40 CFR 60, Subpart GG). Each combustion turbine consist of a combined cycle Westinghouse 501F Combustion Turbine, each with a nominal generator rating of 170 MW and both incorporate an unfired heat recovery steam generator.

Please send your written comments on or approval of the applicant's proposed custom fuel monitoring schedule. The plan is based on the August 14, 1987 EPA guidance memorandum (see Attachment A). The Subpart GG limit on SO_2 emissions is 150 ppmvd @ 15% O_2 or a fuel sulfur limit of 0.8% sulfur. Neither of these limits could be conceivably be violated by use of pipeline quality natural gas which has a maximum SO_2 emission rate of 0.0006 lb/MMBTU (40 CFR 75 Appendix D Section 2.3.1.4). The sulfur content of pipeline quality natural gas in Florida has been estimated at a maximum of 0.003% sulfur. New No. 2 fuel oil having a maximum sulfur content of 0.5%, by weight, shall be used when not firing natural gas.

The Department recommends your approval of the custom fuel monitoring schedule. If you have any questions on this matter please contact me at 850/921-9585.

Sincerely,

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

CHF/sms/raw

Enclosures
FPC-Hines Energy Complex Request

cc: Scott Osbourn, FPC

Sat

Florida Power
CORPORATION

February 9, 2000

Mr. Clair Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Magnolia Park Courtyard
Tallahassee, FL 32301

Dear Mr. Fancy:

Re: Florida Power Corporation's Hines Energy Complex
Customized Fuel Monitoring Schedule

Florida Power Corporation (FPC) has been permitted for the use of natural gas at the above referenced site. The two combustion turbines (CTs), 1A and 1B, are subject to New Source Performance Standards (NSPS 40 CFR 60, Subpart GG). 40 CFR 60.334(b) requires the owner/operator of any CT to monitor the sulfur and nitrogen content of the fuel as follows: 1) If the turbine fuel is supplied by a bulk storage tank, then the sulfur and nitrogen content are to be determined whenever new fuel is transferred into the bulk storage tank, and 2) If the turbine fuel is supplied without an intermediate bulk storage tank, then daily monitoring of the sulfur and nitrogen content of the fuel is required.

Since the natural gas used by the CTs does not pass through an intermediate bulk storage tank, FPC is hereby requesting a customized fuel monitoring schedule as allowed by 40 CFR 60.334(b)(2). While firing natural gas, FPC requests the following customized fuel monitoring schedule which was developed based on an EPA guidance memorandum (Attachment A):

1. Monitoring of natural gas nitrogen content shall not be required in accordance with page 2 of the EPA guidance memorandum attached.

2. Sulfur Monitoring

   a) Analysis for sulfur content of the natural gas shall be conducted using one of the EPA-approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an approved alternate method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3245-81; and ASTM D4048-82 as referenced in 40 CFR 60.335(b)(2).

   b) Effective on the approval date of the customized fuel monitoring schedule, sulfur monitoring shall be conducted twice a month for six months. If this monitoring shows little variability in the sulfur content and indicates consistent compliance with 40 CFR 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.

c) If the monitoring, required by 2(b) above, of the sulfur content of the natural gas shows little variability and the calculated sulfur dioxide emissions represent consistent compliance with the sulfur dioxide emission limits, specified under 40 CFR 60.333, sample analysis shall be conducted twice per year. This monitoring shall be conducted during the first and third quarters of each calendar year.

d) Should any sulfur analysis, as required by items 2(b) or 2(c) above, indicate noncompliance with 40 CFR 60.333, FPC will notify the Department of Environmental Protection (DEP) of such excess emission and the customized fuel monitoring schedule shall be re-examined. The sulfur content of the natural gas shall be monitored weekly during the interim period while this schedule is being re-examined.

3. FPC will notify the DEP of any change in natural gas supply for re-examination of this monitoring schedule. A substantial change in natural gas quality (i.e., sulfur content varying by more than 10 grains/1000 of gas) shall be considered as a change in natural gas supply. Sulfur content of the natural gas will be monitored weekly during the interim period when this monitoring schedule is being re-examined.

4. Records of sample analysis and natural gas supply pertinent to this monitoring schedule shall be retained by FPC for a period of three years, and be available for inspection by appropriate regulatory personnel.

5. FPC will obtain the sulfur content of the natural gas from Florida Gas Transmission Company at its Perry Stream 1 Lab.

Data from natural gas at the Perry Stream 1 site is considered representative of the sulfur content of the natural gas at the Hines Energy Complex site, since there is no additional entry point for sulfur or other elements/compounds which may affect the quality of the natural gas.

If you or your staff have any questions about this request, please do not hesitate to contact me at (727) 826-4258.

Sincerely,

Scott H. Osbourn
Senior Environmental Engineer

Attachments

cc/attach: Mike Harley, DEP
David McNeal, EPC Region IV

APPENDIX A

Attachment 1

05 07-92 11:45AM FROM EPA PPS/SSCD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 14 1987

OFFICE OF AIR AND RADIATION

MEMORANDUM

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

FROM: John B. Rasnic, Chief
Compliance Monitoring Branch

TO: Air Compliance Branch Chiefs
Regions II, III, IV, V, VI and IX

Air Programs Branch Chiefs
Regions I-X

The NSPS for Stationary Gas Turbines (Subpart GG) at 40 CFR 60.334(b)(2) allows for the development of custom fuel monitoring schedules as an alternative to daily monitoring of the sulfur and nitrogen content of fuel fired in the turbines. Regional Offices have been forwarding custom fuel monitoring schedules to the Stationary Source Compliance Division (SSCD) for consideration since it was understood that authority for approval of these schedules was not delegated to the Regions. However, in consultation with the Emission Standards and Engineering Division, it has been determined that the Regional Offices do have the authority to approve Subpart GG custom fuel monitoring schedules. Therefore it is no longer necessary to forward these requests to Headquarters for approval.

Over the past few years, SSCD has issued over twenty custom schedules for sources using pipeline quality natural gas. In order to maintain national consistency, we recommend that any schedules Regional Offices issue for natural gas be no less stringent than the following: sulfur monitoring should

be bimonthly, followed by quarterly, then semiannual, given at least six months of data demonstrating little variability in sulfur content and compliance with §60.333 at each monitoring frequency; nitrogen monitoring can be waived for pipeline quality natural gas, since there is no fuel-bound nitrogen and since the free nitrogen does not contribute appreciably to NO_x emissions. Please see the attached sample custom schedule for details. Given the increasing trend in the use of pipeline quality natural gas, we are investigating the possibility of amending Subpart GG to allow for less frequent sulfur monitoring and a waiver of nitrogen monitoring requirements where natural gas is used.

Where sources using oil request custom fuel monitoring schedules, Regional Offices are encouraged to contact SSCD for consultation on the appropriate fuel monitoring schedule. However, Regions are not required to send the request itself to CBCD for approval.

If you have any questions, please contact Sally M. Farrell at FTS 382-2875.

Attachment

cc: John Crenshaw
George Walsh
Robert Ajax
Earl Salo

Enclosure

Conditions for Custom Fuel Sampling Schedule for Stationary Gas Turbines

1. Monitoring of fuel nitrogen content shall not be required while natural gas is the only fuel fired in the gas turbine.

2. Sulfur Monitoring

   a. Analysis for fuel sulfur content of the natural gas shall be conducted using one of the approved ASTM reference methods for the measuremant of sulfur in gaseous fuels, or an approved alternative method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3246-81; and ASTM D4084-82 as referenced in 40 CFR 60.335(b)(2).

   b. Effective the date of this custom schedule, sulfur monitoring shall be conducted twice monthly for six months. If this monitoring shows little variability in the fuel sulfur content, and indicates consistent compliance with 40 CFR 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.

   c. If after the monitoring required in item 2(b) above, or herein, the sulfur content of the fuel shows little variability and, calculated as sulfur dioxide, represents consistent compliance with the sulfur dioxide emission limits specified under 40 CFR 60.333, sample anaylsis shall be conducted twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.

   d. Should any sulfur analysis as required in items 2(b) or 2(c) above indicate noncompliance with 40 CFR 60.333, the owner or operator shall notify the State Air Control Board) of such excess emissions and the custom schedule shall be re-examined by the Environmental Protection Agency. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.

3. If there is a change in fuel supply, the owner or operator must notify the State of such change for re-examination of this custom schedule. A substantial change in fuel quality shall be considered as a change in fuel supply. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.

4. Records of sample analysis and fuel supply pertinent to this custom schedule shall be retained for a period of three years, and be available for inspection by personnel of federal, state, and local air pollution control agencies.

Best Available Copy

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
2/4/00	10:13 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0399	0.0618	0.0584	0.0780	0.0647	
Propane	0.3042	0.5191	0.4072	0.4065	0.4696	
Iso-Butane	0.0634	0.0996	0.0845	0.0849	0.1002	
N-Butane	0.0637	0.0999	0.0867	0.0856	0.1015	
Iso-Pentane	0.0210	0.0335	0.0295	0.0319	0.0349	
N-Pentane	0.0136	0.0228	0.0197	0.0223	0.0231	
Nitrogen	0.3152	0.5219	0.4157	0.4338	0.4240	
Methane	96.8441	94.9065	95.8467	95.6607	95.3330	
C02	0.7471	0.8188	0.7725	0.8190	0.7900	
Ethane	1.5878	2.9161	2.2790	2.3772	2.6591	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
Btu	1025.9	1039.8	1033.7	1034.8	1038.6	Dry Btu/cf @ 14.
Gravity	0.5776	0.5898	0.5841	0.5857	0.5875	Real Relative De
Total Sulfur	2.1598	1.9099	0.0109			PPM
	0.1350	0.1194	0.0007			Grains/hcf
Current H2O	1.0546		1.3329		2.4171	Lbs. Per MMcf

Best Available Copy

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/27/00	9:36 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0379	0.0569	0.0490	0.0610	0.0610	
Propane	0.3228	0.5049	0.4430	0.3910	0.4468	
Iso-Butane	0.0696	0.1037	0.0929	0.0863	0.0961	
N-Butane	0.0693	0.1045	0.0960	0.0885	0.0937	
Iso-Pentane	0.0182	0.0278	0.0304	0.0307	0.0302	
N-Pentane	0.0106	0.0160	0.0190	0.0209	0.0189	
Nitrogen	0.2799	0.4551	0.3635	0.3492	0.4096	
Methane	96.7553	94.9585	95.5421	95.8182	95.3860	
C02	0.7517	0.7362	0.7637	0.8119	0.7501	
Ethane	1.6846	3.0365	2.6004	2.3423	2.7076	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
%C	73.98		74.0			
Btu	1027.3	1041.6	1037.4	1034.5	1038.4	Dry Btu/cf @ 14.
Gravity	0.5782	0.5889	0.5857	0.5845	0.5866	Real Relative De
Total Sulfur	2.4506	1.4602	0.0185			PPM
	0.1532	0.0913	0.0012			Grains/hcf
Current H2O	0.4220		0.9945		3.1768	Lbs. Per MMcf

Best Available Copy

FGT SYSTEM CHROMATOGRAPHS

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/19/00	8:36 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0379	0.0617	0.0535	0.0475	0.0647	
Propane	0.3841	0.5713	0.4875	0.3996	0.4669	
Iso-Butane	0.0885	0.1267	0.1048	0.0871	0.0987	
N-Butane	0.0852	0.1310	0.1045	0.0862	0.0972	
Iso-Pentane	0.0238	0.0359	0.0276	0.0274	0.0319	
N-Pentane	0.0141	0.0231	0.0173	0.0175	0.0202	
Nitrogen	0.2813	0.5276	0.4871	0.4780	0.4518	
Methane	96.4578	94.6409	95.2774	96.1293	95.3840	
C02	0.8008	0.7079	0.7198	0.6508	0.7524	
Ethane	1.8265	3.1739	2.7207	2.0767	2.6322	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
°C	73.95		73.93			
Btu	1029.8	1045.0	1038.3	1032.1	1038.1	Dry Btu/cf @ 14.
Gravity	0.5806	0.5914	0.5867	0.5817	0.5869	Real Relative De
Total Sulfur	2.1425	2.0357	2.4638			PPM
	0.1339	0.1272	0.1540			Grains/hcf
Current H2O	1.0115		2.0580		2.6243	Lbs. Per MMcf

Best Available Copy

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/14/00	1:01 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0276	0.0519	0.0395	0.0394	0.0485	
Propane	0.3077	0.4878	0.4875	0.3827	0.4361	
Iso-Butane	0.0651	0.1069	0.1025	0.0783	0.0870	
N-Butane	0.0717	0.1129	0.1129	0.0842	0.0893	
Iso-Pentane	0.0154	0.0293	0.0253	0.0194	0.0240	
N-Pentane	0.0097	0.0193	0.0166	0.0122	0.0147	
Nitrogen	0.2885	0.4895	0.4602	0.3406	0.4157	
Methane	96.9612	95.0759	95.3038	96.3866	95.3884	
C02	0.7231	0.6884	0.6688	0.6345	0.7606	
Ethane	1.5300	2.9381	2.7829	2.0221	2.7355	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
%C	73.97		74.02			
Btu	1025.5	1040.9	1039.4	1032.0	1037.2	Dry Btu/cf @ 14.
Gravity	0.5766	0.5881	0.5865	0.5799	0.5861	Real Relative De
Total Sulfur	3.0228	2.1775	1.8278			PPM
	0.1889	0.1361	0.1142			Grains/hcf
Current H2O	0.6559		2.1064		2.2099	Lbs. Per MMcf

Best Available Copy

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/10/00	8:17 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0371	0.0582	0.0459	0.0437	0.0544	
Propane	0.3131	0.5072	0.4489	0.3632	0.4509	
Iso-Butane	0.0670	0.0985	0.0931	0.0745	0.0896	
N-Butane	0.0656	0.0995	0.0942	0.0740	0.0889	
Iso-Pentane	0.0198	0.0307	0.0283	0.0234	0.0269	
N-Pentane	0.0116	0.0197	0.0175	0.0147	0.0167	
Nitrogen	0.2643	0.5007	0.3737	0.3059	0.4017	
Methane	96.8488	94.7209	95.5171	96.2065	95.3893	
C02	0.7341	0.7196	0.7447	0.7325	0.7243	
Ethane	1.6387	3.2451	2.6366	2.1616	2.7574	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
% C	74.01		74.01			
Btu	1027.0	1043.0	1037.7	1032.2	1038.5	Dry Btu/cf @ 14.
Gravity	0.5775	0.5900	0.5857	0.5813	0.5862	Real Relative De
Total Sulfur	0.0000	0.0000	2.1007			PPM
	0.0000	0.0000	0.1313			Grains/hcf
Current H2O	0.8492		0.0000		2.5552	Lbs. Per MMcf

Best Available Copy

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/22/99	1:32 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0412	0.0578	0.1010	0.0486	0.0569	
Propane	0.3546	0.4996	0.5018	0.4398	0.4036	
Iso-Butane	0.0712	0.0945	0.1502	0.0836	0.0820	
N-Butane	0.0652	0.0889	0.1499	0.0819	0.0777	
Iso-Pentane	0.0203	0.0299	0.1003	0.0291	0.0268	
N-Pentane	0.0117	0.0197	0.0999	0.0194	0.0171	
Nitrogen	0.3252	0.5014	0.4963	0.3883	0.4648	
Methane	96.4145	94.7714	95.1485	95.7549	95.4581	
C02	0.7715	0.7759	0.9989	0.7679	0.7675	
Ethane	1.9245	3.1609	2.2531	2.3865	2.6455	
Totals	100.0000	100.0000	100.0162	100.0000	100.0000	
°C	73.93		73.64			
Btu	1029.1	1041.3	1041.1	1034.8	1035.6	Dry Btu/cf @ 14.
Gravity	0.5801	0.5898	0.5934	0.5844	0.5857	Real Relative De
Total Sulfur	0.0000	0.0000	2.3329			PPM
	0.0000	0.0000	0.1458			Grains/hcf
Current H2O	1.0503		1.8785		1.7265	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/16/99	8:11 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0372	0.0484	0.0403	0.0338	0.0461	
Propane	0.2710	0.3993	0.3504	0.2783	0.3291	
Iso-Butane	0.0580	0.0726	0.0705	0.0581	0.0676	
N-Butane	0.0521	0.0677	0.0645	0.0526	0.0635	
Iso-Pentane	0.0201	0.0265	0.0256	0.0204	0.0232	
N-Pentane	0.0121	0.0168	0.0159	0.0130	0.0144	
Nitrogen	0.3348	0.5269	0.4476	0.3405	0.4012	
Methane	96.5959	95.1176	95.5687	96.6597	95.7989	
C02	0.7823	0.7238	0.7745	0.5732	0.7301	
Ethane	1.8366	3.0004	2.6419	1.9705	2.5257	
Totals	100.0000	100.0000	100.0161	100.0000	100.0000	
% Carbon	73.87		73.84			
Btu	1026.2	1037.2	1033.5	1029.3	1033.2	Dry Btu/cf @ 14.7
Gravity	0.5785	0.5867	0.5843	0.5772	0.5829	Real Relative De
Total Sulfur	0.0000	0.0000	2.2571			PPM
	0.0000	0.0000	0.1411			Grains/hcf
Current H2O	1.0564		1.9475		2.0028	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/3/99	11:17 AM

	Perry	Perry	Brooker	Gainsville	West Palm
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream
	Mole%	Mole%	Mole%	Mole%	Mole%
Components					
Hexane	0.0352	0.0504	0.0533	0.0710	0.0568

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Propane	0.2610	0.3680	0.3575	0.2720	0.4164	
Iso-Butane	0.0611	0.0820	0.0797	0.0643	0.0868	
N-Butane	0.0557	0.0778	0.0788	0.0631	0.0869	
Iso-Pentane	0.0216	0.0324	0.0271	0.0197	0.0305	
N-Pentane	0.0139	0.0210	0.0168	0.0112	0.0205	
Nitrogen	0.2779	0.5326	0.3790	0.2624	0.4601	
Methane	96.9383	95.2920	96.1373	96.7178	95.6113	
C02	0.7552	0.6190	0.7031	0.9584	0.6921	
Ethane	1.5801	2.9247	2.1674	1.5601	2.5385	
Totals	100.0000	100.0000	100.0184	100.0000	100.0000	
% Carbon	73.95		73.99			
Btu	1025.1	1038.0	1032.5	1024.8	1036.3	Dry Btu/cf @ 14.7
Gravity	0.5768	0.5855	0.5818	0.5798	0.5849	Real Relative De
Total Sulfur	0.0000	0.0000	1.8959			PPM
	0.0000	0.0000	0.1185			Grains/hcf
Current H2O	1.2687		0.5732		2.1064	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
11/23/99	11:45 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0548	0.0552	0.0542	0.0401	0.0538	
Propane	0.3744	0.3617	0.3764	0.2823	0.4391	
Iso-Butane	0.0839	0.0796	0.0772	0.0625	0.0869	
N-Butane	0.0882	0.0789	0.0777	0.0632	0.0919	
Iso-Pentane	0.0325	0.0289	0.0288	0.0188	0.0271	
N-Pentane	0.0219	0.0194	0.0192	0.0111	0.0175	
Nitrogen	0.2725	0.5357	0.5040	0.2897	0.5056	
Methane	95.9240	95.3899	95.3164	96.8965	95.1365	
C02	0.9590	0.7432	0.7590	0.7927	0.7130	
Ethane	2.1889	2.7075	2.7871	1.5431	2.9286	
Totals	100.0000	100.0000	100.0182	100.0000	100.0000	
°oC	73.82		73.83			
Btu	1032.1	1035.0	1035.8	1024.9	1038.7	Dry Btu/cf @ F
Gravity	0.5845	0.5856	0.5861	0.5774	0.5872	Real Relativ
Total Sulfur	0.0000	0.0000	4.0891			PPM
	0.0000	0.0000	0.2556			Grains/hcf
Current H2O	0.6361		0.9461		2.8660	Lbs. Per

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
11/11/99	6:20 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0373	0.0587	0.0527	0.0444	0.0618	
Propane	0.2098	0.3702	0.3487	0.2592	0.4669	
Iso-Butane	0.0493	0.0781	0.0733	0.0600	0.0960	
N-Butane	0.0447	0.0732	0.0696	0.0546	0.1053	
Iso-Pentane	0.0197	0.0304	0.0301	0.0236	0.0367	
N-Pentane	0.0129	0.0204	0.0199	0.0151	0.0273	
Nitrogen	0.2740	0.5533	0.5314	0.3408	0.5119	
Methane	97.2083	95.1355	95.4265	96.7409	95.5093	
C02	0.8160	0.7168	0.7364	0.7742	0.8058	
Ethane	1.3278	2.9634	2.7114	1.6871	2.3790	
Totals	100.0000	100.0000	100.0205	100.0000	100.0000	
% C	73.83		73.8			
Btu	1021.3	1037.2	1034.5	1025.5	1035.4	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5753	0.5868	0.5852	0.5780	0.5867	Real Relative Density
Total Sulfur	0.0000	0.0000	4.6816			PPM
	0.0000	0.0000	0.2926			Grains/hcf
Current H2O	0.1864		1.3605		1.8992	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
11/3/99	11:39 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0282	0.0409	0.0473	0.0409	0.0457	
Propane	0.2682	0.3392	0.3766	0.3728	0.3245	
Iso-Butane	0.0574	0.0707	0.0723	0.0756	0.0670	
N-Butane	0.0576	0.0734	0.0766	0.0771	0.0639	
Iso-Pentane	0.0169	0.0270	0.0260	0.0267	0.0254	
N-Pentane	0.0103	0.0182	0.0172	0.0174	0.0165	
Nitrogen	0.2563	0.5170	0.4325	0.3953	0.4169	
Methane	97.1756	95.6385	95.7480	96.0127	95.7778	
C02	0.7271	0.6821	0.7464	0.6468	0.7780	
Ethane	1.4023	2.5931	2.4570	2.3348	2.4842	
Totals	100.0000	100.0000	100.0186	100.0000	100.0000	
% C	73.98		73.89			
Btu	1023.8	1033.5	1033.6	1033.8	1032.3	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5753	0.5835	0.5837	0.5819	0.5833	Real Relative Density
Total Sulfur	1.0270	3.1360	2.0091			PPM
	0.0642	0.1960	0.1256			Grains/hcf
Current H2O	0.3702		3.1354		3.4530	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
10/6/99	1:21 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0770	0.0644	0.0634	0.0506	0.0570	
Propane	0.7735	0.5079	0.5021	0.3434	0.4663	
Iso-Butane	0.1812	0.1132	0.1054	0.0768	0.0976	
N-Butane	0.1814	0.1188	0.1145	0.0836	0.1094	
Iso-Pentane	0.0557	0.0374	0.0350	0.0265	0.0348	
N-Pentane	0.0351	0.0248	0.0236	0.0169	0.0236	
Nitrogen	0.2505	0.5217	0.4711	0.2462	0.4804	
Methane	94.8370	94.5372	94.9015	96.7198	95.2449	
C02	0.9096	0.7324	0.7472	0.7445	0.7505	
Ethane	2.6989	3.3422	3.0361	1.6917	2.7354	
Totals	100.0000	100.0000	100.0250	100.0000	100.0000	
Btu	1049.2	1044.8	1042.3	1029.5	1038.7	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5944	0.5916	0.5897	0.5791	0.5876	Real Relative Density
Total Sulfur	1.0270	3.1360	2.8000			PPM
	0.0642	0.1960	0.1750			Grains/hcf
Current H2O	0.0035		0.0000		6.1464	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
9/30/99	6:19 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
Components	Mole%	Mole%	Mole%	Mole%	Mole%	
Hexane	0.0453	0.0623	0.0656	0.0502	0.0546	
Propane	0.3230	0.4867	0.5366	0.3958	0.4891	
Iso-Butane	0.0703	0.0988	0.1048	0.0892	0.1033	
N-Butane	0.0688	0.1002	0.1061	0.0870	0.1063	
Iso-Pentane	0.0248	0.0323	0.0370	0.0265	0.0316	
N-Pentane	0.0161	0.0218	0.0251	0.0168	0.0202	
Nitrogen	0.2629	0.5530	0.5011	0.2784	0.5299	
Methane	96.7850	94.6722	94.8201	96.4197	95.0949	
C02	0.7258	0.6451	0.6423	0.7126	0.7059	
Ethane	1.6779	3.3275	3.1614	1.9239	2.8643	
Totals	100.0000	100.0000	100.0246	100.0000	100.0000	
Btu	1028.3	1043.8	1044.5	1032.4	1039.8	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5783	0.5899	0.5897	0.5808	0.5881	Real Relative Density
Total Sulfur	1.0270	3.1360	2.8000			PPM
	0.0642	0.1960	0.1750			Grains/hcf
Current H2O	3.9311		0.6906		2.6934	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
9/13/99	9:38 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0342	0.0505	0.0506	0.0402	0.0433	
Propane	0.3268	0.4660	0.4270	0.3656	0.4775	
Iso-Butane	0.0758	0.0962	0.0885	0.0845	0.1004	
N-Butane	0.0759	0.1078	0.0994	0.0856	0.1162	
Iso-Pentane	0.0204	0.0288	0.0254	0.0226	0.0299	
N-Pentane	0.0122	0.0204	0.0170	0.0133	0.0210	
Nitrogen	0.2509	0.4283	0.4278	0.2315	0.4610	
Methane	96.8040	95.4136	95.5509	96.7469	95.4330	
C02	0.7768	0.7050	0.7115	0.7297	0.6731	
Ethane	1.6229	2.6835	2.6019	1.6800	2.6446	
Totals	100.0000	100.0000	100.0162	100.0000	100.0000	
Btu	1027.2	1038.7	1036.9	1029.6	1038.6	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5782	0.5863	0.5852	0.5788	0.5861	Real Relative Density
Total Sulfur	1.0270	3.1360	2.8000			PPM
	0.0642	0.1960	0.1750			Grains/hcf
Current H2O	3.1777		0.9185		0.0000	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
8/24/99	11:51 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0528**	**0.0612**	**0.0586**	**0.0567**	**0.0650**	
Propane	**0.4241**	**0.5438**	**0.5378**	**0.5112**	**0.5810**	
Iso-Butane	**0.0996**	**0.1243**	**0.1164**	**0.1092**	**0.1206**	
N-Butane	**0.0983**	**0.1489**	**0.1275**	**0.1157**	**0.1285**	
Iso-Pentane	**0.0322**	**0.0393**	**0.0340**	**0.0344**	**0.0355**	
N-Pentane	**0.0203**	**0.0277**	**0.0225**	**0.0230**	**0.0246**	
Nitrogen	**0.2609**	**0.4699**	**0.4562**	**0.3861**	**0.4664**	
Methane	**96.2941**	**95.0410**	**95.2362**	**95.5085**	**95.0649**	
C02	**0.8763**	**0.6529**	**0.6538**	**0.7490**	**0.7047**	
Ethane	**1.8413**	**2.8909**	**2.7570**	**2.5063**	**2.8087**	
Totals	**100.0000**	**100.0000**	**100.0231**	**100.0000**	**100.0000**	
Btu	**1031.6**	**1044.1**	**1042.1**	**1039.0**	**1043.0**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5828**	**0.5894**	**0.5879**	**0.5867**	**0.5894**	Real Relative Density
Total Sulfur	**1.0090**	**0.4910**	**2.8000**			PPM
	0.0631	**0.0307**	**0.1750**			Grains/hcf
Current H2O	**0.5687**		**1.9406**		**0.0000**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
8/11/99	8:47 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0439	0.0616	0.0590	0.0467	0.0683	
Propane	0.3392	0.4647	0.4663	0.2709	0.3989	
Iso-Butane	0.0754	0.0857	0.0925	0.0679	0.0843	
N-Butane	0.0681	0.0822	0.0930	0.0603	0.0793	
Iso-Pentane	0.0239	0.0337	0.0319	0.0246	0.0320	
N-Pentane	0.0145	0.0212	0.0219	0.0149	0.0209	
Nitrogen	0.2507	0.4662	0.4186	0.2491	0.4516	
Methane	96.7842	95.1065	95.4107	96.8029	95.3136	
C02	0.7690	0.6701	0.7057	0.7250	0.7177	
Ethane	1.6311	3.0081	2.7005	1.7377	2.8334	
Totals	100.0000	100.0000	100.0212	100.0000	100.0000	
Btu	1027.9	1041.0	1039.0	1027.9	1038.4	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5785	0.5875	0.5864	0.5778	0.5865	Real Relative Density
Total Sulfur	0.7570	1.0340	2.8000			PPM
	0.0473	0.0646	0.1750			Grains/hcf
Current H2O	0.5687		2.5276		0.0000	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

	Date	Time
	7/23/99	7:54 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0567	0.0727	0.0746	0.0483	0.0688	
Propane	0.3312	0.4992	0.4344	0.3423	0.4705	
Iso-Butane	0.0826	0.1096	0.0970	0.0824	0.1044	
N-Butane	0.0729	0.1102	0.0897	0.0788	0.1069	
Iso-Pentane	0.0302	0.0408	0.0388	0.0274	0.0341	
N-Pentane	0.0199	0.0287	0.0279	0.0169	0.0213	
Nitrogen	0.2612	0.4524	0.4262	0.2808	0.4385	
Methane	96.5787	95.1458	95.4690	96.4521	95.2670	
C02	0.7837	0.5658	0.6383	0.7398	0.6597	
Ethane	1.7828	2.9749	2.7041	1.9311	2.8288	
Totals	100.0000	100.0000	100.0274	100.0000	100.0000	
Btu	1029.8	1044.5	1040.2	1030.8	1041.4	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5801	0.5880	0.5862	0.5803	0.5874	Real Relative Density
Total Sulfur	N/A	N/A	N/A			PPM
	N/A	N/A	N/A			Grains/hcf
Current H2O	1.0961		1.2776		2.5552	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

	Date	Time
	7/12/99	12:18 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0570	0.0607	0.0660	0.0550	0.0655	
Propane	0.3973	0.4974	0.5038	0.4407	0.5397	
Iso-Butane	0.0906	0.0979	0.1006	0.0902	0.1040	
N-Butane	0.0919	0.1000	0.1037	0.0943	0.1048	
Iso-Pentane	0.0327	0.0309	0.0321	0.0311	0.0321	
N-Pentane	0.0220	0.0205	0.0202	0.0220	0.0213	
Nitrogen	0.2552	0.5135	0.4684	0.3387	0.4509	
Methane	96.3134	94.8700	94.9456	95.8567	94.9503	
C02	0.8060	0.6266	0.6598	0.5187	0.6630	
Ethane	1.9338	3.1826	3.1000	2.5525	3.0683	
Totals	100.0000	100.0000	100.0211	100.0000	100.0000	
Btu	1032.6	1043.3	1043.3	1040.0	1043.8	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5822	0.5888	0.5889	0.5831	0.5891	Real Relative Density
Total Sulfur	0.6920	1.4820	2.8000			PPM
	0.0432	0.0926	0.1750			Grains/hcf
Current H2O	1.6191		2.2928		3.1768	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

	Date	Time
	7/7/99	8:33 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0355	0.0556	0.0540	0.0543	0.0597	
Propane	0.3281	0.5068	0.4868	0.5075	0.5072	
Iso-Butane	0.0746	0.1007	0.0948	0.0947	0.0993	
N-Butane	0.0718	0.1049	0.0992	0.0984	0.1046	
Iso-Pentane	0.0207	0.0288	0.0280	0.0282	0.0288	
N-Pentane	0.0125	0.0192	0.0180	0.0187	0.0188	
Nitrogen	0.2524	0.4533	0.4500	0.4286	0.4752	
Methane	96.6698	95.1051	95.1740	95.1923	95.0719	
C02	0.7814	0.6382	0.6491	0.7077	0.6640	
Ethane	1.7532	2.9874	2.9462	2.8697	2.9705	
Totals	100.0000	100.0000	100.0189	100.0000	100.0000	
Btu	1028.1	1042.3	1041.2	1040.6	1041.8	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5789	0.5878	0.5872	0.5875	0.5881	Real Relative Density
Total Sulfur	0.6920	1.4820	2.8000	PPM		
	0.0432	0.0926	0.1750	Grains/hcf		
Current H2O	1.2531		1.8646		2.9696	Lbs. Per MMcf

Florida Power
CORPORATION

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MAR 02 2000
BUREAU OF AIR REGULATION

February 28, 2000

Ms. Kathy Carter, Clerk
Office of General Counsel
Florida Department of Environmental Protection
Room 638
3900 Commonwealth Blvd.
Tallahassee, FL 32399-3000

Dear Ms. Carter:

RE: Florida Power Corporation, Hines Energy Complex
REQUEST FOR EXTENSION OF TIME on the *Intent to Issue Initial Title V Air Permit*
Draft Permit No. 1050234-001-AV

On December 8, 1999, Florida Power Corporation (FPC) received the above-referenced *Intent to Issue Initial Title V Air Operation Permit*. A review of the permit conditions has revealed that several issues remain to be resolved. Accordingly, FPC requests an extension of time, pursuant to Florida Administrative Code Rule 62-110.106(4), to and including March 31, 2000, in which to file a Petition for Administrative Proceedings in the above-styled matter. Granting of this request will not prejudice either party, but will further both parties' mutual interest by hopefully avoiding the need to actually file a Petition for Administrative Proceeding in this matter. If the Department denies this request, FPC requests the opportunity to file a Petition for Administrative Proceeding within 10 days of such denial.

If you should have any questions, please contact Mr. Scott Osbourn of FPC at (727) 826-4258.

Sincerely,

W. Jeffrey Pardue, C.E.P.
Director, Environmental Services Department
Title V Responsible Official

Robert A. Manning

Robert A. Manning, Esq.
Hopping Green Sams & Smith

cc: Scott Sheplak, DEP
Doug Beason, DEP OGC
2/2/00 cc: Scott Sheplak
Russell Wider

One Power Plaza • 263 – 13th Avenue South • St. Petersburg, Florida 33701-5511
P.O. Box 14042 • St. Petersburg, Florida 33733-4042 • (727) 820-5151
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Russell

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BUREAU OF AIR REGULATION

February 9, 2000

Scott Sheplak, P.E.
Bureau of Air Regulation
Division of Air Resources Management
Department of Environmental Protection
2600 Blair Stone Road, MS 5505
Tallahassee, FL 32399-2400

Dear Mr. Sheplak:

Re: Hines Energy Complex
Draft Title V Permit No.: 1050234-001-AV

Florida Power Corporation (FPC) is providing comments related to the draft Title V permit dated December 1, 1999. Our comments are directed at specific conditions for the facility and emissions units. The comments are presented below in the same order as the conditions appear in the initial draft permit. FPC has filed a *Request for Extension of Time* until February 29, 2000. In this regard, if we are unable to resolve each of the issues described below before this time, FPC intends to file an additional Request for Extension. Accordingly, at your earliest convenience after reviewing this letter, please contact me at (727) 826-4258 to discuss.

1. On the Placard Page under "Referenced attachments made a part of this permit", another two appendices should be added containing 1) a "Table of NO_x (lb/hr) vs. Inlet Temperature" and 2) a "Description of Start-up Sequence for a Two-on-One Configuration". In addition, the heat input curve, contained in the draft permit and referenced under Appendix G-1, is not the most recent version that was contained in the permit revision dated May 27, 1999 (DEP File No. 1050234-002-AC, PSD-FL-195A). A copy of this revised heat input curve, as well as the other two necessary references, are transmitted with this letter as Attachment A.

2. Subsection A, Facility Description- Delete the first sentence (because it is redundant) and revise the second sentence to read as follows: "Power Block 1 consists of two combined cycle combustion turbines, with heat recovery steam generators (HRSGs), for a nominal total of 500 MWs... Emissions from ~~the~~ each CT and ~~the Steam Boiler~~ HRSG combination are vented through a single stack."

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3. Section III, Subsection A.- Revise the description to read as follows: "Emission units 001 and 002 each consist of ~~two~~ a combined cycle Westinghouse 501F Combustion Turbine~~s~~, each with a nominal generator rating of 170 MW and a maximum heat input rating of 1,866 MMBtu/hr (LHV) while firing natural gas and 1,999 MMBtu/hr (LHV) while firing fuel oil."

4. Condition A.1- Please clarify that the heat input ratings are based on the fuel's lower heating value (LHV), by denoting as LHV. Also, below this condition, add the standard Title V language regarding the purpose of the heat input limits.

5. Condition A.3- The fuel oil sulfur content should be 0.05%, not 0.5%, by weight.

6. Condition A.5(a)- Revise the description to read as follows: "Manufacturer's curves for the NO_x emission rate correction to other temperatures at different loads ~~shall be~~ were provided to the DEP and are now a part of this permit (Appendix G-1) ~~for review 90 days after selection of the CT. Subject to approval by the Department for technical validity applying sound engineering principles.~~"

7. Page 9, footnote "g" to the emission limit table- All language after the first sentence should be deleted. This language refers to actions to be taken after the selection of the CT vendor and is no longer necessary for inclusion in the Title V permit.

8. Page 10, footnote "i"- This footnote references a date of November 1, 2000 by which the SCR system may be removed and replaced by new dry low NO_x (DLN) burners, capable of achieving the NO_x permit limit. Siemens-Westinghouse Power Corporation (SWPC, formerly Westinghouse) has supplied information (Attachment B) that indicates significant progress to date on achieving this goal, however, it is not likely that FPC could obtain and install such technology by November 1, 2000. FPC requests that the deadline date be extended by one year (to November 1, 2001) in order to allow SWPC sufficient time to further develop their DLN technology. **(It should be noted that the enclosure in Attachment B includes a request by SWPC that the contents of the attachment remain confidential.)**

9. Excess Emissions, Condition A.7- It appears that some language is missing from this condition. Beginning with the second sentence, the condition should read as follows: "During a cold start-up to combined cycle operation, up to four hours of excess emissions are allowed in a 24-hour period. Cold start-up is defined as a start-up to combined cycle operation following a steam turbine shutdown of greater than 48 hours. During a warm start-up to combined cycle operation, up to three hours of excess emissions are allowed in a 24-hour period. Warm start-up is defined as a start-up to combined cycle operation following a steam turbine shutdown ~~lasting at least~~ of greater than 8 hours and less than 48 hours.

10. Condition A.9- The references to 40 CFR Part 75 should be put into context with Part 60 and the word "or" should be added. The following is suggested: "...or 40 CFR Part 75, whichever is more stringent."

11. Condition A.11- Under separate cover, FPC has submitted a request for a Custom Fuel Monitoring Schedule (Attachment C). FPC requests that the permit language in Condition A.11 be revised in accordance with the letter.

12. Monitoring of Operations and Test Methods and Procedures (pages 11 and 12)- VOC emissions need to be addressed within these two sections. The appropriate test method given within the existing PSD permit is either Reference Method 18 or Method 25A. Further, mention should be made that compliance testing for VOCs was only required initially.

13. Condition A.13- The condition should read as follows: "The test methods for particulate emissions shall be either EPA Method 5 or Method 17..."

14. Condition A.18- The condition seems to imply that no testing is required for particulate matter, CO and visible emissions if liquid fuel is burned less than 400 hours per year. Is this the case, or does this language apply only to compliance testing for the fuel oil-related emission limits? The permit language needs to be made clearer in this regard.

15. Condition A.22- This condition arguably requires FPC to keep daily records of the heating value of each fuel. A recommendation to make this clearer might read as follows: "...the permittee shall maintain daily records of natural gas and fuel oil consumption for each turbine ~~and~~ , as well as recent records of the heating value for each fuel." Also, this condition should require record retention for five years, not two years.

16. Condition A.24- The rule cite provided (40 CFR 52.21) only applies if a PSD program is delegated and not approved, and there is disagreement as to whether this provision is in Florida's program at all. Rather, the condition should reference and cite the original permit (i.e., PSD-FL-195A).

17. Condition A.2 of the Acid Rain Permit- FPC requests that the reference to NO_x be deleted.

18. Appendix I-1. FPC requests that Item 7 be deleted as Title V is not intended to cover motor vehicles.

19. Table 1-1. The sulfur content should be corrected to 0.05% and the headings should be consistent with the PSD permit. Specifically, the term "standards" should be changed to "basis" and the heading "allowable emissions" should only be above the lb/hr and TPY columns.

20. Table 2-1. In the column entitled "CMS", what is the purpose and meaning of the term "power output"?

FPC appreciates the opportunity to comment on the Initial Title V Permit. Thank you again for your prompt attention to this matter.

Sincerely,

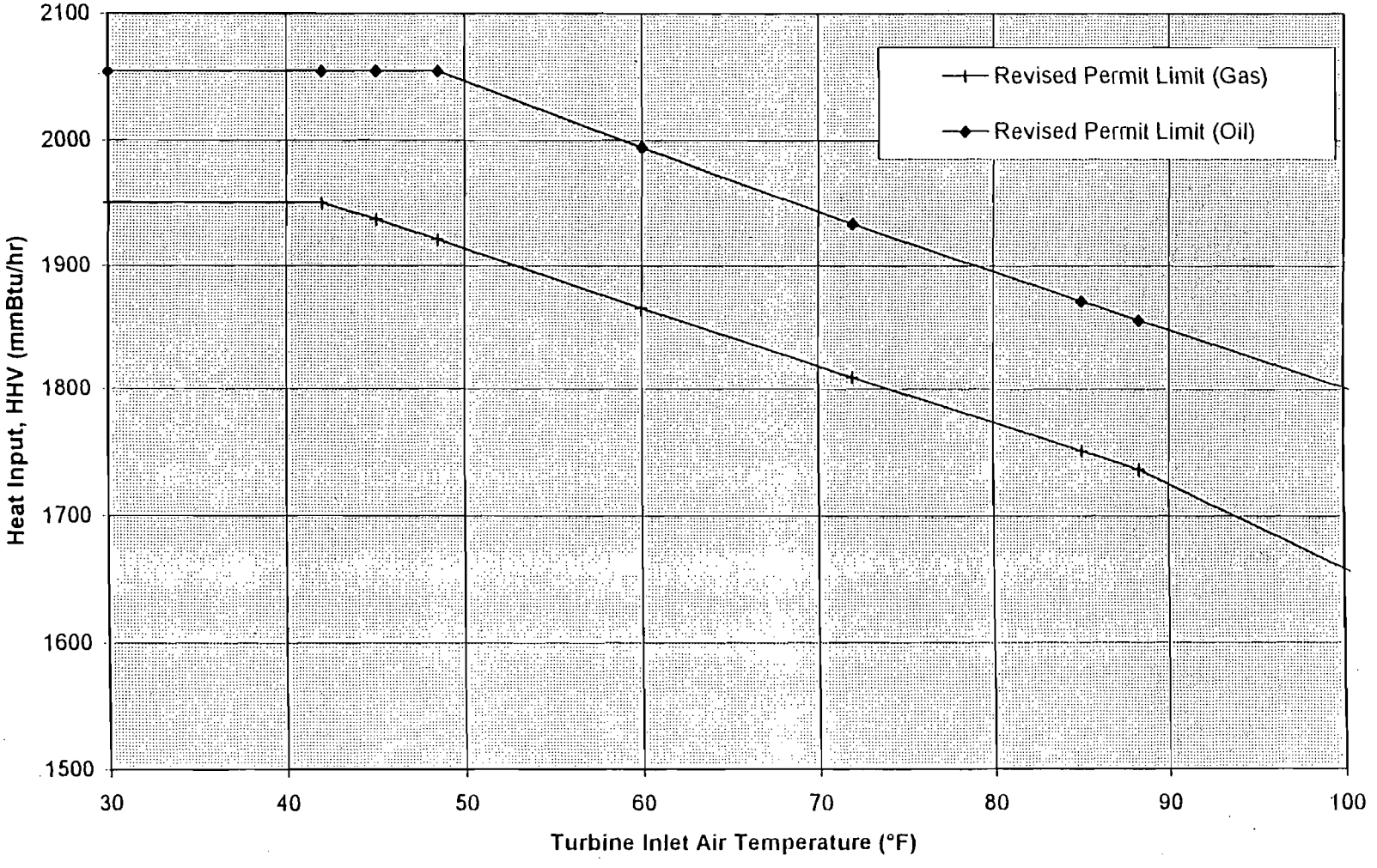
Scott H. Osbourn
Senior Environmental Engineer

Attachments

cc: Ken Kosky, P.E., Golder Assoc.
Robert Manning, HGS&S

ATTACHMENT A

Hines Energy Complex - Power Block 1
CT Heat Input, HHV (per CT) vs. Turbine Inlet Air Temperature



Florida Power Corporation - Hines Energy Project
NOx Emission Rates

Gas Fuel		Oil Fuel	
Temp, °F	NOx, lb/hr	Temp, °F	NOx, lb/hr
20	78.00	20	316.00
21	78.00	21	316.08
22	78.00	22	316.17
23	78.00	23	316.25
24	78.00	24	316.33
25	78.00	25	316.42
26	78.00	26	316.50
27	78.00	27	316.58
28	78.00	28	316.67
29	78.00	29	316.75
30	78.00	30	316.83
31	78.00	31	316.92
32	78.00	32	317.00
33	78.00	33	317.00
34	78.00	34	317.00
35	78.00	35	317.00
36	77.80	36	317.00
37	77.60	37	317.00
38	77.40	38	317.00
39	77.20	39	317.00
40	77.00	40	317.00
41	76.79	41	317.00
42	76.58	42	317.00
43	76.37	43	317.00
44	76.16	44	316.25
45	75.95	45	315.50
46	75.74	46	314.75
47	75.53	47	314.00
48	75.32	48	313.25
49	75.11	49	312.50
50	74.89	50	311.75
51	74.68	51	311.00
52	74.47	52	310.25
53	74.26	53	309.50
54	74.05	54	308.75
55	73.84	55	308.00
56	73.63	56	307.25
57	73.42	57	306.50
58	73.21	58	305.75
59	73.00	59	305.00
60	72.85	60	304.46
61	72.69	61	303.92
62	72.54	62	303.38
63	72.38	63	302.85
64	72.23	64	302.31
65	72.08	65	301.77
66	71.92	66	301.23
67	71.77	67	300.69

68	71.62	68	300.15
69	71.46	69	299.62
70	71.31	70	299.08
71	71.15	71	298.54
72	71.00	72	298.00
73	70.86	73	297.23
74	70.71	74	296.46
75	70.57	75	295.69
76	70.43	76	294.92
77	70.29	77	294.15
78	70.14	78	293.38
79	70.00	79	292.62
80	69.83	80	291.85
81	69.67	81	291.08
82	69.50	82	290.31
83	69.33	83	289.54
84	69.17	84	288.77
85	69.00	85	288.00
86	68.80	86	287.30
87	68.60	87	286.60
88	68.40	88	285.90
89	68.20	89	285.20
90	68.00	90	284.50
91	67.80	91	283.80
92	67.60	92	283.10
93	67.40	93	282.40
94	67.20	94	281.70
95	67.00	95	281.00

HINES ENERGY COMPLEX

Start-up Sequence for Two-on-One Configuration

Start-up of a two-on-one (2 x 1) configuration (i.e., 2 CTs and 1 ST) combined cycle unit requires the integration of 3 independent processes. A simple cycle CT mode, a steam turbine cycle, and the combined cycle mode (which includes either 1 x 1 operation or 2 x 1 operation), are the three processes to be started and synchronized. The 2 x 1 combined cycle mode is the most complex and, therefore, the most conservative to consider in this discussion.

Step 1 – Cold start * of each CT/ HRSG requires approximately 1 hour of firing to stabilize process temperatures at about 20 to 30 percent CT megawatt load. (In the 2 x 1 configuration, there would be a slight lag time between start-up of the first CT and the second CT.) This represents the approximate CT load for heating the HRSG steam in order to attain the necessary HRSG steam energy for the process to become stable and controllable. (Warm start * time requirement is the same for this step.)

Step 2 – Approximately 1 hour is required to match steam turbine metal temperatures to the CT/HRSG steam process, and to achieve steam purity. The steam piping to and from the steam turbine as well as the massive steam turbine shell metals must all be warmed up and be within allowable temperature differentials before proceeding to roll the steam turbine, or significant damage will occur.

Step 3 – Approximately 2 hours to roll and hold the steam turbine in accordance with manufacturers' instructions to raise steam and metal temperatures and raise MW output of both each CT and ST. The CT load must be held to maintain the steam energy to the steam turbine. The steam turbine must be ramped up slowly to avoid thermal stresses per the OEM instructions. Turbine life could be significantly reduced if these instructions were not followed. Several hold points must be observed while ramping up in order to "soak" the turbine. More steam can be routed to the turbine, once its synchronized to the grid.

Step 4 – Raise loading of CT to compliance per manufactures' recommendations.

A 3-hour start (termed a warm start) is a Step 3, shortened from 2 hours to 1 hour.

* **Note – Cold start = steam turbine 1st stage throttle temp <400°F (corresponds to a start following a shutdown > 48 hours).**

– Warm start = steam turbine 1st stage throttle temp of 400-800°F (corresponds to a start following a shutdown > 8 hours and less than 48 hours).

– Hot start = steam turbine 1st stage throttle temp >800°F (corresponds to a start following a shutdown < 8 hours).

ATTACHMENT B

ATTACHMENT C

Florida Power
CORPORATION

February 9, 2000

Mr. Clair Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Magnolia Park Courtyard
Tallahassee, FL 32301

Dear Mr. Fancy:

Re: Florida Power Corporation's Hines Energy Complex
Customized Fuel Monitoring Schedule

Florida Power Corporation (FPC) has been permitted for the use of natural gas at the above referenced site. The two combustion turbines (CTs), 1A and 1B, are subject to New Source Performance Standards (NSPS 40 CFR 60, Subpart GG). 40 CFR 60.334(b) requires the owner/operator of any CT to monitor the sulfur and nitrogen content of the fuel as follows: 1) If the turbine fuel is supplied by a bulk storage tank, then the sulfur and nitrogen content are to be determined whenever new fuel is transferred into the bulk storage tank, and 2) If the turbine fuel is supplied without an intermediate bulk storage tank, then daily monitoring of the sulfur and nitrogen content of the fuel is required.

Since the natural gas used by the CTs does not pass through an intermediate bulk storage tank, FPC is hereby requesting a customized fuel monitoring schedule as allowed by 40 CFR 60.334(b)(2). While firing natural gas, FPC requests the following customized fuel monitoring schedule which was developed based on an EPA guidance memorandum (Attachment A):

1. Monitoring of natural gas nitrogen content shall not be required in accordance with page 2 of the EPA guidance memorandum attached.

2. Sulfur Monitoring

   a) Analysis for sulfur content of the natural gas shall be conducted using one of the EPA-approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an approved alternate method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3245-81; and ASTM D4048-82 as referenced in 40 CFR 60.335(b)(2).

   b) Effective on the approval date of the customized fuel monitoring schedule, sulfur monitoring shall be conducted twice a month for six months. If this monitoring shows little variability in the sulfur content and indicates consistent compliance with 40 CFR 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.

c) If the monitoring, required by 2(b) above, of the sulfur content of the natural gas shows little variability and the calculated sulfur dioxide emissions represent consistent compliance with the sulfur dioxide emission limits, specified under 40 CFR 60.333, sample analysis shall be conducted twice per year. This monitoring shall be conducted during the first and third quarters of each calendar year.

d) Should any sulfur analysis, as required by items 2(b) or 2(c) above, indicate noncompliance with 40 CFR 60.333, FPC will notify the Department of Environmental Protection (DEP) of such excess emission and the customized fuel monitoring schedule shall be re-examined. The sulfur content of the natural gas shall be monitored weekly during the interim period while this schedule is being re-examined.

3. FPC will notify the DEP of any change in natural gas supply for re-examination of this monitoring schedule. A substantial change in natural gas quality (i.e., sulfur content varying by more than 10 grains/1000 of gas) shall be considered as a change in natural gas supply. Sulfur content of the natural gas will be monitored weekly during the interim period when this monitoring schedule is being re-examined.

4. Records of sample analysis and natural gas supply pertinent to this monitoring schedule shall be retained by FPC for a period of three years, and be available for inspection by appropriate regulatory personnel.

5. FPC will obtain the sulfur content of the natural gas from Florida Gas Transmission Company at its Perry Stream 1 Lab.

Data from natural gas at the Perry Stream 1 site is considered representative of the sulfur content of the natural gas at the Hines Energy Complex site, since there is no additional entry point for sulfur or other elements/compounds which may affect the quality of the natural gas.

If you or your staff have any questions about this request, please do not hesitate to contact me at (727) 826-4258.

Sincerely,

Scott H. Osboum
Senior Environmental Engineer

Attachments

cc/attach: Mike Harley, DEP
David McNeal, EPC Region IV

APPENDIX A

(RECEIVED 09/28 14:49 1992 AT 9043324189 PAGE 1 (PRINTED PAGE 1))
SEP-28-1992 13:39 FROM OAQPS.ESD.CPB/ISB RTP NC TO 89043324189 P.01

05 07-92 11:45AM FROM EPA FPS/SSCD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 14 1987

OFFICE OF AIR AND RADIATION

MEMORANDUM

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

FROM: John B. Rasnic, Chief
Compliance Monitoring Branch

TO: Air Compliance Branch Chiefs
Regions II, III, IV, V, VI and IX

Air Programs Branch Chiefs
Regions I-X

The NSPS for Stationary Gas Turbines (Subpart GG) at 40 CFR 60.334(b)(2) allows for the development of custom fuel monitoring schedules as an alternative to daily monitoring of the sulfur and nitrogen content of fuel fired in the turbines. Regional Offices have been forwarding custom fuel monitoring schedules to the Stationary Source Compliance Division (SSCD) for consideration since it was understood that authority for approval of these schedules was not delegated to the Regions. However, in consultation with the Emission Standards and Engineering Division, it has been determined that the Regional Offices do have the authority to approve Subpart GG custom fuel monitoring schedules. Therefore it is no longer necessary to forward these requests to Headquarters for approval.

Over the past few years, SSCD has issued over twenty custom schedules for sources using pipeline quality natural gas. In order to maintain national consistency, we recommend that any schedules Regional Offices issue for natural gas be no less stringent than the following: sulfur monitoring should

be bimonthly, followed by quarterly, then semiannual, given at least six months of data demonstrating little variability in sulfur content and compliance with §60.333 at each monitoring frequency; nitrogen monitoring can be waived for pipeline quality natural gas, since there is no fuel-bound nitrogen and since the free nitrogen does not contribute appreciably to NO_x emissions. Please see the attached sample custom schedule for details. Given the increasing trend in the use of pipeline quality natural gas, we are investigating the possibility of amending Subpart GG to allow for less frequent sulfur monitoring and a waiver of nitrogen monitoring requirements where natural gas is used.

Where sources using oil request custom fuel monitoring schedules, Regional Offices are encouraged to contact SSCD for consultation on the appropriate fuel monitoring schedule. However, Regions are not required to send the request itself to CSCD for approval.

If you have any questions, please contact Sally M. Farrell at FTS 382-2875.

Attachment

cc: John Crenshaw
George Walsh
Robert Ajax
Earl Salo

Enclosure

Conditions for Custom Fuel Sampling Schedule for Stationary Gas Turbines

1. Monitoring of fuel nitrogen content shall not be required while natural gas is the only fuel fired in the gas turbine.

2. Sulfur Monitoring

   a. Analysis for fuel sulfur content of the natural gas shall be conducted using one of the approved ASTM reference methods for the measuremant of sulfur in gaseous fuels, or an approved alternative method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3246-81; and ASTM D4084-82 as referenced in 40 CFR 60.335(b)(2).

   b. Effective the date of this custom schedule, sulfur monitoring shall be conducted twice monthly for six months. If this monitoring shows little variability in the fuel sulfur content, and indicates consistent compliance with 40 CFR 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.

   c. If after the monitoring required in item 2(b) above, or herein, the sulfur content of the fuel shows little variability and, calculated as sulfur dioxide, represents consistent compliance with the sulfur dioxide emission limits specified under 40 CFR 60.333, sample anaylsis shall be conducted twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.

   d. Should any sulfur analysis as required in items 2(b) or 2(c) above indicate noncompliance with 40 CFR 60.333, the owner or operator shall notify the State Air Control Board) of such excess emissions and the custom schedule shall be re-examined by the Environmental Protection Agency. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.

3. If there is a change in fuel supply, the owner or operator must notify the State of such change for re-examination of this custom schedule. A substantial change in fuel quality shall be considered as a change in fuel supply. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.

4. Records of sample analysis and fuel supply pertinent to this custom schedule shall be retained for a period of three years, and be available for inspection by personnel of federal, state, and local air pollution control agencies.

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
2/4/00	10:13 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0399	0.0618	0.0584	0.0780	0.0647	
Propane	0.3042	0.5191	0.4072	0.4065	0.4696	
Iso-Butane	0.0634	0.0996	0.0845	0.0849	0.1002	
N-Butane	0.0637	0.0999	0.0867	0.0856	0.1015	
Iso-Pentane	0.0210	0.0335	0.0295	0.0319	0.0349	
N-Pentane	0.0136	0.0228	0.0197	0.0223	0.0231	
Nitrogen	0.3152	0.5219	0.4157	0.4338	0.4240	
Methane	96.8441	94.9065	95.8467	95.6607	95.3330	
C02	0.7471	0.8188	0.7725	0.8190	0.7900	
Ethane	1.5878	2.9161	2.2790	2.3772	2.6591	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
Btu	1025.9	1039.8	1033.7	1034.8	1038.6	Dry Btu/cf @ 14.
Gravity	0.5776	0.5898	0.5841	0.5857	0.5875	Real Relative De
Total Sulfur	2.1598	1.9099	0.0109			PPM
	0.1350	0.1194	0.0007			Grains/hcf
Current H2O	1.0546		1.3329		2.4171	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/27/00	9:36 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0379**	**0.0569**	**0.0490**	**0.0610**	**0.0610**	
Propane	**0.3228**	**0.5049**	**0.4430**	**0.3910**	**0.4468**	
Iso-Butane	**0.0696**	**0.1037**	**0.0929**	**0.0863**	**0.0961**	
N-Butane	**0.0693**	**0.1045**	**0.0960**	**0.0885**	**0.0937**	
Iso-Pentane	**0.0182**	**0.0278**	**0.0304**	**0.0307**	**0.0302**	
N-Pentane	**0.0106**	**0.0160**	**0.0190**	**0.0209**	**0.0189**	
Nitrogen	**0.2799**	**0.4551**	**0.3635**	**0.3492**	**0.4096**	
Methane	**96.7553**	**94.9585**	**95.5421**	**95.8182**	**95.3860**	
C02	**0.7517**	**0.7362**	**0.7637**	**0.8119**	**0.7501**	
Ethane	**1.6846**	**3.0365**	**2.6004**	**2.3423**	**2.7076**	
Totals	**100.0000**	**100.0000**	**100.0000**	**100.0000**	**100.0000**	
%C	73.98		74.0			
Btu	**1027.3**	**1041.6**	**1037.4**	**1034.5**	**1038.4**	Dry Btu/cf @ 14.
Gravity	**0.5782**	**0.5889**	**0.5857**	**0.5845**	**0.5866**	Real Relative De
Total Sulfur	**2.4506**	**1.4602**	**0.0185**			PPM
	0.1532	**0.0913**	**0.0012**			Grains/hcf
Current H2O	**0.4220**		**0.9945**		**3.1768**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/19/00	8:36 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0379	0.0617	0.0535	0.0475	0.0647	
Propane	0.3841	0.5713	0.4875	0.3996	0.4669	
Iso-Butane	0.0885	0.1267	0.1048	0.0871	0.0987	
N-Butane	0.0852	0.1310	0.1045	0.0862	0.0972	
Iso-Pentane	0.0238	0.0359	0.0276	0.0274	0.0319	
N-Pentane	0.0141	0.0231	0.0173	0.0175	0.0202	
Nitrogen	0.2813	0.5276	0.4871	0.4780	0.4518	
Methane	96.4578	94.6409	95.2774	96.1293	95.3840	
C02	0.8008	0.7079	0.7198	0.6508	0.7524	
Ethane	1.8265	3.1739	2.7207	2.0767	2.6322	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
%C	73.95		73.93			
Btu	1029.8	1045.0	1038.3	1032.1	1038.1	Dry Btu/cf @ 14.
Gravity	0.5806	0.5914	0.5867	0.5817	0.5869	Real Relative De
Total Sulfur	2.1425	2.0357	2.4638			PPM
	0.1339	0.1272	0.1540			Grains/hcf
Current H2O	1.0115		2.0580		2.6243	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/14/00	1:01 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0276	0.0519	0.0395	0.0394	0.0485	
Propane	0.3077	0.4878	0.4875	0.3827	0.4361	
Iso-Butane	0.0651	0.1069	0.1025	0.0783	0.0870	
N-Butane	0.0717	0.1129	0.1129	0.0842	0.0893	
Iso-Pentane	0.0154	0.0293	0.0253	0.0194	0.0240	
N-Pentane	0.0097	0.0193	0.0166	0.0122	0.0147	
Nitrogen	0.2885	0.4895	0.4602	0.3406	0.4157	
Methane	96.9612	95.0759	95.3038	96.3866	95.3884	
C02	0.7231	0.6884	0.6688	0.6345	0.7606	
Ethane	1.5300	2.9381	2.7829	2.0221	2.7355	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
%C	73.97		74.02			
Btu	1025.5	1040.9	1039.4	1032.0	1037.2	Dry Btu/cf @ 14.
Gravity	0.5766	0.5881	0.5865	0.5799	0.5861	Real Relative De
Total Sulfur	3.0228	2.1775	1.8278			PPM
	0.1889	0.1361	0.1142			Grains/hcf
Current H2O	0.6559		2.1064		2.2099	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/10/00	8:17 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0371	0.0582	0.0459	0.0437	0.0544	
Propane	0.3131	0.5072	0.4489	0.3632	0.4509	
Iso-Butane	0.0670	0.0985	0.0931	0.0745	0.0896	
N-Butane	0.0656	0.0995	0.0942	0.0740	0.0889	
Iso-Pentane	0.0198	0.0307	0.0283	0.0234	0.0269	
N-Pentane	0.0116	0.0197	0.0175	0.0147	0.0167	
Nitrogen	0.2643	0.5007	0.3737	0.3059	0.4017	
Methane	96.8488	94.7209	95.5171	96.2065	95.3893	
C02	0.7341	0.7196	0.7447	0.7325	0.7243	
Ethane	1.6387	3.2451	2.6366	2.1616	2.7574	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
% C	74.01		74.01			
Btu	1027.0	1043.0	1037.7	1032.2	1038.5	Dry Btu/cf @ 14.
Gravity	0.5775	0.5900	0.5857	0.5813	0.5862	Real Relative De
Total Sulfur	0.0000	0.0000	2.1007			PPM
	0.0000	0.0000	0.1313			Grains/hcf
Current H2O	0.8492		0.0000		2.5552	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/22/99	1:32 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0412	0.0578	0.1010	0.0486	0.0569	
Propane	0.3546	0.4996	0.5018	0.4398	0.4036	
Iso-Butane	0.0712	0.0945	0.1502	0.0836	0.0820	
N-Butane	0.0652	0.0889	0.1499	0.0819	0.0777	
Iso-Pentane	0.0203	0.0299	0.1003	0.0291	0.0268	
N-Pentane	0.0117	0.0197	0.0999	0.0194	0.0171	
Nitrogen	0.3252	0.5014	0.4963	0.3883	0.4648	
Methane	96.4145	94.7714	95.1485	95.7549	95.4581	
C02	0.7715	0.7759	0.9989	0.7679	0.7675	
Ethane	1.9245	3.1609	2.2531	2.3865	2.6455	
Totals	100.0000	100.0000	100.0162	100.0000	100.0000	
°o C	73.93		73.64			
Btu	1029.1	1041.3	1041.1	1034.8	1035.6	Dry Btu/cf @ 14.
Gravity	0.5801	0.5898	0.5934	0.5844	0.5857	Real Relative De
Total Sulfur	0.0000	0.0000	2.3329			PPM
	0.0000	0.0000	0.1458			Grains/hcf
Current H2O	1.0503		1.8785		1.7265	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/16/99	8:11 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0372	0.0484	0.0403	0.0338	0.0461	
Propane	0.2710	0.3993	0.3504	0.2783	0.3291	
Iso-Butane	0.0580	0.0726	0.0705	0.0581	0.0676	
N-Butane	0.0521	0.0677	0.0645	0.0526	0.0635	
Iso-Pentane	0.0201	0.0265	0.0256	0.0204	0.0232	
N-Pentane	0.0121	0.0168	0.0159	0.0130	0.0144	
Nitrogen	0.3348	0.5269	0.4476	0.3405	0.4012	
Methane	96.5959	95.1176	95.5687	96.6597	95.7989	
C02	0.7823	0.7238	0.7745	0.5732	0.7301	
Ethane	1.8366	3.0004	2.6419	1.9705	2.5257	
Totals	100.0000	100.0000	100.0161	100.0000	100.0000	
% Carbon	73.87		73.84			
Btu	1026.2	1037.2	1033.5	1029.3	1033.2	Dry Btu/cf @ 14.7
Gravity	0.5785	0.5867	0.5843	0.5772	0.5829	Real Relative De
Total Sulfur	0.0000	0.0000	2.2571			PPM
	0.0000	0.0000	0.1411			Grains/hcf
Current H2O	1.0564		1.9475		2.0028	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/3/99	11:17 AM

	Perry	Perry	Brooker	Gainsville	West Palm
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream
	Mole%	Mole%	Mole%	Mole%	Mole%
Components					
Hexane	0.0352	0.0504	0.0533	0.0710	0.0568

Propane	0.2610	0.3680	0.3575	0.2720	0.4164	
Iso-Butane	0.0611	0.0820	0.0797	0.0643	0.0868	
N-Butane	0.0557	0.0778	0.0788	0.0631	0.0869	
Iso-Pentane	0.0216	0.0324	0.0271	0.0197	0.0305	
N-Pentane	0.0139	0.0210	0.0168	0.0112	0.0205	
Nitrogen	0.2779	0.5326	0.3790	0.2624	0.4601	
Methane	96.9383	95.2920	96.1373	96.7178	95.6113	
C02	0.7552	0.6190	0.7031	0.9584	0.6921	
Ethane	1.5801	2.9247	2.1674	1.5601	2.5385	
Totals	100.0000	100.0000	100.0184	100.0000	100.0000	
%Carbon	73.95		73.99			
Btu	1025.1	1038.0	1032.5	1024.8	1036.3	Dry Btu/cf @ 14.7
Gravity	0.5768	0.5855	0.5818	0.5798	0.5849	Real Relative De
Total Sulfur	0.0000	0.0000	1.8959			PPM
	0.0000	0.0000	0.1185			Grains/hcf
Current H2O	1.2687		0.5732		2.1064	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
11/23/99	11:45 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0548	0.0552	0.0542	0.0401	0.0538	
Propane	0.3744	0.3617	0.3764	0.2823	0.4391	
Iso-Butane	0.0839	0.0796	0.0772	0.0625	0.0869	
N-Butane	0.0882	0.0789	0.0777	0.0632	0.0919	
Iso-Pentane	0.0325	0.0289	0.0288	0.0188	0.0271	
N-Pentane	0.0219	0.0194	0.0192	0.0111	0.0175	
Nitrogen	0.2725	0.5357	0.5040	0.2897	0.5056	
Methane	95.9240	95.3899	95.3164	96.8965	95.1365	
C02	0.9590	0.7432	0.7590	0.7927	0.7130	
Ethane	2.1889	2.7075	2.7871	1.5431	2.9286	
Totals	100.0000	100.0000	100.0182	100.0000	100.0000	
°oC	73.82		73.83			
Btu	1032.1	1035.0	1035.8	1024.9	1038.7	Dry Btu/cf @ F
Gravity	0.5845	0.5856	0.5861	0.5774	0.5872	Real Relativ
Total Sulfur	0.0000	0.0000	4.0891			PPM
	0.0000	0.0000	0.2556			Grains/hcf
Current H2O	0.6361		0.9461		2.8660	Lbs. Per

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
11/11/99	6:20 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0373**	**0.0587**	**0.0527**	**0.0444**	**0.0618**	
Propane	**0.2098**	**0.3702**	**0.3487**	**0.2592**	**0.4669**	
Iso-Butane	**0.0493**	**0.0781**	**0.0733**	**0.0600**	**0.0960**	
N-Butane	**0.0447**	**0.0732**	**0.0696**	**0.0546**	**0.1053**	
Iso-Pentane	**0.0197**	**0.0304**	**0.0301**	**0.0236**	**0.0367**	
N-Pentane	**0.0129**	**0.0204**	**0.0199**	**0.0151**	**0.0273**	
Nitrogen	**0.2740**	**0.5533**	**0.5314**	**0.3408**	**0.5119**	
Methane	**97.2083**	**95.1355**	**95.4265**	**96.7409**	**95.5093**	
C02	**0.8160**	**0.7168**	**0.7364**	**0.7742**	**0.8058**	
Ethane	**1.3278**	**2.9634**	**2.7114**	**1.6871**	**2.3790**	
Totals	**100.0000**	**100.0000**	**100.0205**	**100.0000**	**100.0000**	
% C	.7383		73.8			
Btu	**1021.3**	**1037.2**	**1034.5**	**1025.5**	**1035.4**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5753**	**0.5868**	**0.5852**	**0.5780**	**0.5867**	Real Relative Density
Total Sulfur	**0.0000**	**0.0000**	**4.6816**			PPM
	0.0000	**0.0000**	**0.2926**			Grains/hcf
Current H2O	**0.1864**		**1.3605**		**1.8992**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
11/3/99	11:39 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0282**	**0.0409**	**0.0473**	**0.0409**	**0.0457**	
Propane	**0.2682**	**0.3392**	**0.3766**	**0.3728**	**0.3245**	
Iso-Butane	**0.0574**	**0.0707**	**0.0723**	**0.0756**	**0.0670**	
N-Butane	**0.0576**	**0.0734**	**0.0766**	**0.0771**	**0.0639**	
Iso-Pentane	**0.0169**	**0.0270**	**0.0260**	**0.0267**	**0.0254**	
N-Pentane	**0.0103**	**0.0182**	**0.0172**	**0.0174**	**0.0165**	
Nitrogen	**0.2563**	**0.5170**	**0.4325**	**0.3953**	**0.4169**	
Methane	**97.1756**	**95.6385**	**95.7480**	**96.0127**	**95.7778**	
C02	**0.7271**	**0.6821**	**0.7464**	**0.6468**	**0.7780**	
Ethane	**1.4023**	**2.5931**	**2.4570**	**2.3348**	**2.4842**	
Totals	**100.0000**	**100.0000**	**100.0186**	**100.0000**	**100.0000**	
%C	73.98		73.89			
Btu	**1023.8**	**1033.5**	**1033.6**	**1033.8**	**1032.3**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5753**	**0.5835**	**0.5837**	**0.5819**	**0.5833**	Real Relative Density
Total Sulfur	**1.0270**	**3.1360**	**2.0091**			PPM
	0.0642	**0.1960**	**0.1256**			Grains/hcf
Current H2O	**0.3702**		**3.1354**		**3.4530**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
10/6/99	1:21 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0770**	**0.0644**	**0.0634**	**0.0506**	**0.0570**	
Propane	**0.7735**	**0.5079**	**0.5021**	**0.3434**	**0.4663**	
Iso-Butane	**0.1812**	**0.1132**	**0.1054**	**0.0768**	**0.0976**	
N-Butane	**0.1814**	**0.1188**	**0.1145**	**0.0836**	**0.1094**	
Iso-Pentane	**0.0557**	**0.0374**	**0.0350**	**0.0265**	**0.0348**	
N-Pentane	**0.0351**	**0.0248**	**0.0236**	**0.0169**	**0.0236**	
Nitrogen	**0.2505**	**0.5217**	**0.4711**	**0.2462**	**0.4804**	
Methane	**94.8370**	**94.5372**	**94.9015**	**96.7198**	**95.2449**	
C02	**0.9096**	**0.7324**	**0.7472**	**0.7445**	**0.7505**	
Ethane	**2.6989**	**3.3422**	**3.0361**	**1.6917**	**2.7354**	
Totals	**100.0000**	**100.0000**	**100.0250**	**100.0000**	**100.0000**	
Btu	**1049.2**	**1044.8**	**1042.3**	**1029.5**	**1038.7**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5944**	**0.5916**	**0.5897**	**0.5791**	**0.5876**	Real Relative Density
Total Sulfur	**1.0270**	**3.1360**	**2.8000**			PPM
	0.0642	**0.1960**	**0.1750**			Grains/hcf
Current H2O	**0.0035**		**0.0000**		**6.1464**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
9/30/99	6:19 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0453	0.0623	0.0656	0.0502	0.0546	
Propane	0.3230	0.4867	0.5366	0.3958	0.4891	
Iso-Butane	0.0703	0.0988	0.1048	0.0892	0.1033	
N-Butane	0.0688	0.1002	0.1061	0.0870	0.1063	
Iso-Pentane	0.0248	0.0323	0.0370	0.0265	0.0316	
N-Pentane	0.0161	0.0218	0.0251	0.0168	0.0202	
Nitrogen	0.2629	0.5530	0.5011	0.2784	0.5299	
Methane	96.7850	94.6722	94.8201	96.4197	95.0949	
C02	0.7258	0.6451	0.6423	0.7126	0.7059	
Ethane	1.6779	3.3275	3.1614	1.9239	2.8643	
Totals	100.0000	100.0000	100.0246	100.0000	100.0000	
Btu	1028.3	1043.8	1044.5	1032.4	1039.8	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5783	0.5899	0.5897	0.5808	0.5881	Real Relative Density
Total Sulfur	1.0270	3.1360	2.8000			PPM
	0.0642	0.1960	0.1750			Grains/hcf
Current H2O	3.9311		0.6906		2.6934	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
9/13/99	9:38 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0342	0.0505	0.0506	0.0402	0.0433	
Propane	0.3268	0.4660	0.4270	0.3656	0.4775	
Iso-Butane	0.0758	0.0962	0.0885	0.0845	0.1004	
N-Butane	0.0759	0.1078	0.0994	0.0856	0.1162	
Iso-Pentane	0.0204	0.0288	0.0254	0.0226	0.0299	
N-Pentane	0.0122	0.0204	0.0170	0.0133	0.0210	
Nitrogen	0.2509	0.4283	0.4278	0.2315	0.4610	
Methane	96.8040	95.4136	95.5509	96.7469	95.4330	
C02	0.7768	0.7050	0.7115	0.7297	0.6731	
Ethane	1.6229	2.6835	2.6019	1.6800	2.6446	
Totals	100.0000	100.0000	100.0162	100.0000	100.0000	
Btu	1027.2	1038.7	1036.9	1029.6	1038.6	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5782	0.5863	0.5852	0.5788	0.5861	Real Relative Density
Total Sulfur	1.0270	3.1360	2.8000			PPM
	0.0642	0.1960	0.1750			Grains/hcf
Current H2O	3.1777		0.9185		0.0000	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
8/24/99	11:51 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0528	0.0612	0.0586	0.0567	0.0650	
Propane	0.4241	0.5438	0.5378	0.5112	0.5810	
Iso-Butane	0.0996	0.1243	0.1164	0.1092	0.1206	
N-Butane	0.0983	0.1489	0.1275	0.1157	0.1285	
Iso-Pentane	0.0322	0.0393	0.0340	0.0344	0.0355	
N-Pentane	0.0203	0.0277	0.0225	0.0230	0.0246	
Nitrogen	0.2609	0.4699	0.4562	0.3861	0.4664	
Methane	96.2941	95.0410	95.2362	95.5085	95.0649	
C02	0.8763	0.6529	0.6538	0.7490	0.7047	
Ethane	1.8413	2.8909	2.7570	2.5063	2.8087	
Totals	100.0000	100.0000	100.0231	100.0000	100.0000	
Btu	1031.6	1044.1	1042.1	1039.0	1043.0	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5828	0.5894	0.5879	0.5867	0.5894	Real Relative Density
Total Sulfur	1.0090	0.4910	2.8000			PPM
	0.0631	0.0307	0.1750			Grains/hcf
Current H2O	0.5687		1.9406		0.0000	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
8/11/99	8:47 AM

	Perry 36" Stream #1 Mole%	Perry 30" Stream #2 Mole%	Brooker 24" Stream Mole%	Gainsville 8" Stream Mole%	West Palm 24" Stream Mole%	
Components						
Hexane	0.0439	0.0616	0.0590	0.0467	0.0683	
Propane	0.3392	0.4647	0.4663	0.2709	0.3989	
Iso-Butane	0.0754	0.0857	0.0925	0.0679	0.0843	
N-Butane	0.0681	0.0822	0.0930	0.0603	0.0793	
Iso-Pentane	0.0239	0.0337	0.0319	0.0246	0.0320	
N-Pentane	0.0145	0.0212	0.0219	0.0149	0.0209	
Nitrogen	0.2507	0.4662	0.4186	0.2491	0.4516	
Methane	96.7842	95.1065	95.4107	96.8029	95.3136	
C02	0.7690	0.6701	0.7057	0.7250	0.7177	
Ethane	1.6311	3.0081	2.7005	1.7377	2.8334	
Totals	100.0000	100.0000	100.0212	100.0000	100.0000	
Btu	1027.9	1041.0	1039.0	1027.9	1038.4	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5785	0.5875	0.5864	0.5778	0.5865	Real Relative Density
Total Sulfur	0.7570	1.0340	2.8000			PPM
	0.0473	0.0646	0.1750			Grains/hcf
Current H2O	0.5687		2.5276		0.0000	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
7/23/99	7:54 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0567**	**0.0727**	**0.0746**	**0.0483**	**0.0688**	
Propane	**0.3312**	**0.4992**	**0.4344**	**0.3423**	**0.4705**	
Iso-Butane	**0.0826**	**0.1096**	**0.0970**	**0.0824**	**0.1044**	
N-Butane	**0.0729**	**0.1102**	**0.0897**	**0.0788**	**0.1069**	
Iso-Pentane	**0.0302**	**0.0408**	**0.0388**	**0.0274**	**0.0341**	
N-Pentane	**0.0199**	**0.0287**	**0.0279**	**0.0169**	**0.0213**	
Nitrogen	**0.2612**	**0.4524**	**0.4262**	**0.2808**	**0.4385**	
Methane	**96.5787**	**95.1458**	**95.4690**	**96.4521**	**95.2670**	
C02	**0.7837**	**0.5658**	**0.6383**	**0.7398**	**0.6597**	
Ethane	**1.7828**	**2.9749**	**2.7041**	**1.9311**	**2.8288**	
Totals	**100.0000**	**100.0000**	**100.0274**	**100.0000**	**100.0000**	
Btu	**1029.8**	**1044.5**	**1040.2**	**1030.8**	**1041.4**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5801**	**0.5880**	**0.5862**	**0.5803**	**0.5874**	Real Relative Density
Total Sulfur	**N/A**	**N/A**	**N/A**			PPM
	N/A	**N/A**	**N/A**			Grains/hcf
Current H2O	**1.0961**		**1.2776**		**2.5552**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
7/12/99	12:18 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0570**	**0.0607**	**0.0660**	**0.0550**	**0.0655**	
Propane	**0.3973**	**0.4974**	**0.5038**	**0.4407**	**0.5397**	
Iso-Butane	**0.0906**	**0.0979**	**0.1006**	**0.0902**	**0.1040**	
N-Butane	**0.0919**	**0.1000**	**0.1037**	**0.0943**	**0.1048**	
Iso-Pentane	**0.0327**	**0.0309**	**0.0321**	**0.0311**	**0.0321**	
N-Pentane	**0.0220**	**0.0205**	**0.0202**	**0.0220**	**0.0213**	
Nitrogen	**0.2552**	**0.5135**	**0.4684**	**0.3387**	**0.4509**	
Methane	**96.3134**	**94.8700**	**94.9456**	**95.8567**	**94.9503**	
C02	**0.8060**	**0.6266**	**0.6598**	**0.5187**	**0.6630**	
Ethane	**1.9338**	**3.1826**	**3.1000**	**2.5525**	**3.0683**	
Totals	**100.0000**	**100.0000**	**100.0211**	**100.0000**	**100.0000**	
Btu	**1032.6**	**1043.3**	**1043.3**	**1040.0**	**1043.8**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5822**	**0.5888**	**0.5889**	**0.5831**	**0.5891**	Real Relative Density
Total Sulfur	**0.6920**	**1.4820**	**2.8000**			PPM
	0.0432	**0.0926**	**0.1750**			Grains/hcf
Current H2O	**1.6191**		**2.2928**		**3.1768**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
7/7/99	8:33 AM

	Perry 36" Stream #1 Mole%	Perry 30" Stream #2 Mole%	Brooker 24" Stream Mole%	Gainsville 8" Stream Mole%	West Palm 24" Stream Mole%	
Components						
Hexane	0.0355	0.0556	0.0540	0.0543	0.0597	
Propane	0.3281	0.5068	0.4868	0.5075	0.5072	
Iso-Butane	0.0746	0.1007	0.0948	0.0947	0.0993	
N-Butane	0.0718	0.1049	0.0992	0.0984	0.1046	
Iso-Pentane	0.0207	0.0288	0.0280	0.0282	0.0288	
N-Pentane	0.0125	0.0192	0.0180	0.0187	0.0188	
Nitrogen	0.2524	0.4533	0.4500	0.4286	0.4752	
Methane	96.6698	95.1051	95.1740	95.1923	95.0719	
C02	0.7814	0.6382	0.6491	0.7077	0.6640	
Ethane	1.7532	2.9874	2.9462	2.8697	2.9705	
Totals	100.0000	100.0000	100.0189	100.0000	100.0000	
Btu	1028.1	1042.3	1041.2	1040.6	1041.8	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	0.5789	0.5878	0.5872	0.5875	0.5881	Real Relative Density
Total Sulfur	0.6920	1.4820	2.8000	PPM		
	0.0432	0.0926	0.1750	Grains/hcf		
Current H2O	1.2531		1.8646		2.9696	Lbs. Per MMcf

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 29-Feb-2000 10:15am
From: Alvaro Linero TAL
LINERO_A
Dept: Air Resources Management
Tel No: 850/921-9523

To: Scott.H.Osbourn (Scott.H.Osbourn@fpc.com)
CC: Russell Wider TAL (WIDER_R)
CC: Scott Sheplak TAL (SHEPLAK_S)

Subject: Re: FPC Hines

Scott. Earlier I advised Mike Kennedy by E-Mail that it might be necessary to request a PSD permit modification to change the date by which the SCR units can be replaced by more advanced DLN technology at Hines. That is to say that it doesn't look like the Title V program can change that date via issuance of the Title V permit.

Nevertheless, I asked the Title V Section to explain the matter in their review of the changes requested on the draft Title V permit. I provided technical input on the subject based on recent permitting experience on Westinghouse 501F combustion turbines. You can then decide whether you want to submit an application to revise the PSD permit based on their response to Item 8 of the February 9 letter.

Thanks. Al Linero.

INTEROFFICE MEMORANDUM

Sensitivity: COMPANY CONFIDENTIAL

Date: 29-Feb-2000 10:01am
From: Alvaro Linero TAL
LINERO_A
Dept: Air Resources Management
Tel No: 850/921-9523

To: Russell Wider TAL (WIDER_R)
CC: Scott Sheplak TAL (SHEPLAK_S)

Subject: FPC Hines Draft Title V Permit

Russ. I reviewed item 8 in the letter of February 9, 2000 that provided FPC's comments on the draft Title V permit for the nominal 500 MW FPC Hines Energy Complex.

The facility is presently operating under its revised construction permit as modified in 1998. To act on Item 8 will require that they submit a specific request to modify that permit.

However, you might as well advise them when you address their other requests in Items 1 through 20 that we do not have reasonable assurance that Seimens-Westinghouse will be able to install Dry Low NOx technology capable of achieving 12 ppmvd by November 1, 2000 or even November 1, 2001. Specifically you might state it as follows:

The Department reviewed the request under Item 8 to extend until November 1, 2001 the date by which the selective catalytic reduction systems can be replaced with advanced dry low NOx combustors to achieve the nitrogen oxides emission limits. On the basis of the information provided, the Department does not have reasonable assurance that Seimens-Westinghouse will be able to provide a combustor that will meet the permitted limit using DLN technology by that date.

The Department has reviewed a number of applications based on Seimens-Westinghouse 501F combustion turbines. The lowest recent DLN guarantee for a Seimens-Westinghouse 501F that we are aware of is 15 ppmvd to be achieved in 2002. We have specified single fuel burners (gas-only) on some simple cycle 501F units because of the difficulty foreseen in achieving the 15 ppmvd limits with a duel-fuel combustor.

If FPC still wishes to pursue this request, please submit a brief application to modify the existing PSD permit. Please include a more specific schedule and guarantee from Seimens-Westinghouse to achieve the permitted limits by DLN. We note that as presently configured, carbon monoxide emissions were unexpectedly low (1-3 ppmvd) compared with the BACT-based CO limits. Please advise how the proposed burners might impact CO emissions.

Scott Forney Dir

Florida Power
CORPORATION

February 9, 2000

RECEIVED
FEB 10 2000
BUREAU OF AIR REGULATION

Mr. Clair Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
111 South Magnolia Drive, Suite 4
Magnolia Park Courtyard
Tallahassee, FL 32301

Dear Mr. Fancy:

Re: Florida Power Corporation's Hines Energy Complex
Customized Fuel Monitoring Schedule

Florida Power Corporation (FPC) has been permitted for the use of natural gas at the above referenced site. The two combustion turbines (CTs), 1A and 1B, are subject to New Source Performance Standards (NSPS 40 CFR 60, Subpart GG). 40 CFR 60.334(b) requires the owner/operator of any CT to monitor the sulfur and nitrogen content of the fuel as follows: 1) If the turbine fuel is supplied by a bulk storage tank, then the sulfur and nitrogen content are to be determined whenever new fuel is transferred into the bulk storage tank, and 2) If the turbine fuel is supplied without an intermediate bulk storage tank, then daily monitoring of the sulfur and nitrogen content of the fuel is required.

Since the natural gas used by the CTs does not pass through an intermediate bulk storage tank, FPC is hereby requesting a customized fuel monitoring schedule as allowed by 40 CFR 60.334(b)(2). While firing natural gas, FPC requests the following customized fuel monitoring schedule which was developed based on an EPA guidance memorandum (Attachment A):

1. Monitoring of natural gas nitrogen content shall not be required in accordance with page 2 of the EPA guidance memorandum attached.

2. Sulfur Monitoring

   a) Analysis for sulfur content of the natural gas shall be conducted using one of the EPA-approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an approved alternate method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3245-81; and ASTM D4048-82 as referenced in 40 CFR 60.335(b)(2).

   b) Effective on the approval date of the customized fuel monitoring schedule, sulfur monitoring shall be conducted twice a month for six months. If this monitoring shows little variability in the sulfur content and indicates consistent compliance with 40 CFR 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.

c) If the monitoring, required by 2(b) above, of the sulfur content of the natural gas shows little variability and the calculated sulfur dioxide emissions represent consistent compliance with the sulfur dioxide emission limits, specified under 40 CFR 60.333, sample analysis shall be conducted twice per year. This monitoring shall be conducted during the first and third quarters of each calendar year.

d) Should any sulfur analysis, as required by items 2(b) or 2(c) above, indicate noncompliance with 40 CFR 60.333, FPC will notify the Department of Environmental Protection (DEP) of such excess emission and the customized fuel monitoring schedule shall be re-examined. The sulfur content of the natural gas shall be monitored weekly during the interim period while this schedule is being re-examined.

3. FPC will notify the DEP of any change in natural gas supply for re-examination of this monitoring schedule. A substantial change in natural gas quality (i.e., sulfur content varying by more than 10 grains/1000 of gas) shall be considered as a change in natural gas supply. Sulfur content of the natural gas will be monitored weekly during the interim period when this monitoring schedule is being re-examined.

4. Records of sample analysis and natural gas supply pertinent to this monitoring schedule shall be retained by FPC for a period of three years, and be available for inspection by appropriate regulatory personnel.

5. FPC will obtain the sulfur content of the natural gas from Florida Gas Transmission Company at its Perry Stream 1 Lab.

Data from natural gas at the Perry Stream 1 site is considered representative of the sulfur content of the natural gas at the Hines Energy Complex site, since there is no additional entry point for sulfur or other elements/compounds which may affect the quality of the natural gas.

If you or your staff have any questions about this request, please do not hesitate to contact me at (727) 826-4258.

Sincerely,

Scott H. Osbourn
Senior Environmental Engineer

Attachments

cc/attach: Mike Harley, DEP
David McNeal, EPC Region IV

APPENDIX A

Attachment I

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 14 1992

OFFICE OF AIR AND RADIATION

MEMORANDUM

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

FROM: John B. Rasnic, Chief
Compliance Monitoring Branch

TO: Air Compliance Branch Chiefs
Regions II, III, IV, V, VI and IX

Air Programs Branch Chiefs
Regions I-X

The NSPS for Stationary Gas Turbines (Subpart GG) at 40 CFR 60.334(b)(2) allows for the development of custom fuel monitoring schedules as an alternative to daily monitoring of the sulfur and nitrogen content of fuel fired in the turbines. Regional Offices have been forwarding custom fuel monitoring schedules to the Stationary Source Compliance Division (SSCD) for consideration since it was understood that authority for approval of these schedules was not delegated to the Regions. However, in consultation with the Emission Standards and Engineering Division, it has been determined that the Regional Offices do have the authority to approve Subpart GG custom fuel monitoring schedules. Therefore it is no longer necessary to forward these requests to Headquarters for approval.

Over the past few years, SSCD has issued over twenty custom schedules for sources using pipeline quality natural gas. In order to maintain national consistency, we recommend that any schedules Regional Offices issue for natural gas be no less stringent than the following: sulfur monitoring should

be bimonthly, followed by quarterly, then semiannual, given at least six months of data demonstrating little variability in sulfur content and compliance with §60.333 at each monitoring frequency; nitrogen monitoring can be waived for pipeline quality natural gas, since there is no fuel-bound nitrogen and since the free nitrogen does not contribute appreciably to NO_x emissions. Please see the attached sample custom schedule for details. Given the increasing trend in the use of pipeline quality natural gas, we are investigating the possibility of amending Subpart GG to allow for less frequent sulfur monitoring and a waiver of nitrogen monitoring requirements where natural gas is used.

Where sources using oil request custom fuel monitoring schedules, Regional Offices are encouraged to contact SSCD for consultation on the appropriate fuel monitoring schedule. However, Regions are not required to send the request itself to CSCD for approval.

If you have any questions, please contact Sally M. Farrell at FTS 382-2675.

Attachment

cc: John Crenshaw
George Walsh
Robert Ajax
Earl Salo

Enclosure

Conditions for Custom Fuel Sampling Schedule for Stationary Gas Turbines

1. Monitoring of fuel nitrogen content shall not be required while natural gas is the only fuel fired in the gas turbine.

2. Sulfur Monitoring

   a. Analysis for fuel sulfur content of the natural gas shall be conducted using one of the approved ASTM reference methods for the measuremant of sulfur in gaseous fuels, or an approved alternative method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3246-81; and ASTM D4084-82 as referenced in 40 CFR 60.335(b)(2).

   b. Effective the date of this custom schedule, sulfur monitoring shall be conducted twice monthly for six months. If this monitoring shows little variability in the fuel sulfur content, and indicates consistent compliance with 40 CFR 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.

   c. If after the monitoring required in item 2(b) above, or herein, the sulfur content of the fuel shows little variability and, calculated as sulfur dioxide, represents consistent compliance with the sulfur dioxide emission limits specified under 40 CFR 60.333, sample anaylsis shall be conducted twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.

   d. Should any sulfur analysis as required in items 2(b) or 2(c) above indicate noncompliance with 40 CFR 60.333, the owner or operator shall notify the State Air Control Board) of such excess emissions and the custom schedule shall be re-examined by the Environmental Protection Agency. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.

3. If there is a change in fuel supply, the owner or operator must notify the State of such change for re-examination of this custom schedule. A substantial change in fuel quality shall be considered as a change in fuel supply. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.

4. Records of sample analysis and fuel supply pertinent to this custom schedule shall be retained for a period of three years, and be available for inspection by personnel of federal, state, and local air pollution control agencies.

Best Available Copy

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
2/4/00	10:13 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	0.0399	0.0618	0.0584	0.0780	0.0647	
Propane	0.3042	0.5191	0.4072	0.4065	0.4696	
Iso-Butane	0.0634	0.0996	0.0845	0.0849	0.1002	
N-Butane	0.0637	0.0999	0.0867	0.0856	0.1015	
Iso-Pentane	0.0210	0.0335	0.0295	0.0319	0.0349	
N-Pentane	0.0136	0.0228	0.0197	0.0223	0.0231	
Nitrogen	0.3152	0.5219	0.4157	0.4338	0.4240	
Methane	96.8441	94.9065	95.8467	95.6607	95.3330	
C02	0.7471	0.8188	0.7725	0.8190	0.7900	
Ethane	1.5878	2.9161	2.2790	2.3772	2.6591	
Totals	100.0000	100.0000	100.0000	100.0000	100.0000	
Btu	1025.9	1039.8	1033.7	1034.8	1038.6	Dry Btu/cf @ 14.
Gravity	0.5776	0.5898	0.5841	0.5857	0.5875	Real Relative De
Total Sulfur	2.1598	1.9099	0.0109			PPM
	0.1350	0.1194	0.0007			Grains/hcf
Current H2O	1.0546		1.3329		2.4171	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/27/00	9:36 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0379**	**0.0569**	**0.0490**	**0.0610**	**0.0610**	
Propane	**0.3228**	**0.5049**	**0.4430**	**0.3910**	**0.4468**	
Iso-Butane	**0.0696**	**0.1037**	**0.0929**	**0.0863**	**0.0961**	
N-Butane	**0.0693**	**0.1045**	**0.0960**	**0.0885**	**0.0937**	
Iso-Pentane	**0.0182**	**0.0278**	**0.0304**	**0.0307**	**0.0302**	
N-Pentane	**0.0106**	**0.0160**	**0.0190**	**0.0209**	**0.0189**	
Nitrogen	**0.2799**	**0.4551**	**0.3635**	**0.3492**	**0.4096**	
Methane	**96.7553**	**94.9585**	**95.5421**	**95.8182**	**95.3860**	
C02	**0.7517**	**0.7362**	**0.7637**	**0.8119**	**0.7501**	
Ethane	**1.6846**	**3.0365**	**2.6004**	**2.3423**	**2.7076**	
Totals	**100.0000**	**100.0000**	**100.0000**	**100.0000**	**100.0000**	
90C	73.98		74.0			
Btu	**1027.3**	**1041.6**	**1037.4**	**1034.5**	**1038.4**	Dry Btu/cf @ 14.
Gravity	**0.5782**	**0.5889**	**0.5857**	**0.5845**	**0.5866**	Real Relative De
Total Sulfur	**2.4506**	**1.4602**	**0.0185**			PPM
	0.1532	**0.0913**	**0.0012**			Grains/hcf
Current H2O	**0.4220**		**0.9945**		**3.1768**	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/19/00	8:36 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0379**	**0.0617**	**0.0535**	**0.0475**	**0.0647**	
Propane	**0.3841**	**0.5713**	**0.4875**	**0.3996**	**0.4669**	
Iso-Butane	**0.0885**	**0.1267**	**0.1048**	**0.0871**	**0.0987**	
N-Butane	**0.0852**	**0.1310**	**0.1045**	**0.0862**	**0.0972**	
Iso-Pentane	**0.0238**	**0.0359**	**0.0276**	**0.0274**	**0.0319**	
N-Pentane	**0.0141**	**0.0231**	**0.0173**	**0.0175**	**0.0202**	
Nitrogen	**0.2813**	**0.5276**	**0.4871**	**0.4780**	**0.4518**	
Methane	**96.4578**	**94.6409**	**95.2774**	**96.1293**	**95.3840**	
C02	**0.8008**	**0.7079**	**0.7198**	**0.6508**	**0.7524**	
Ethane	**1.8265**	**3.1739**	**2.7207**	**2.0767**	**2.6322**	
Totals	**100.0000**	**100.0000**	**100.0000**	**100.0000**	**100.0000**	
%C	73.95		73.93			
Btu	**1029.8**	**1045.0**	**1038.3**	**1032.1**	**1038.1**	Dry Btu/cf @ 14.
Gravity	**0.5806**	**0.5914**	**0.5867**	**0.5817**	**0.5869**	Real Relative De
Total Sulfur	**2.1425**	**2.0357**	**2.4638**			PPM
	0.1339	**0.1272**	**0.1540**			Grains/hcf
Current H2O	**1.0115**		**2.0580**		**2.6243**	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/14/00	1:01 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0276**	**0.0519**	**0.0395**	**0.0394**	**0.0485**	
Propane	**0.3077**	**0.4878**	**0.4875**	**0.3827**	**0.4361**	
Iso-Butane	**0.0651**	**0.1069**	**0.1025**	**0.0783**	**0.0870**	
N-Butane	**0.0717**	**0.1129**	**0.1129**	**0.0842**	**0.0893**	
Iso-Pentane	**0.0154**	**0.0293**	**0.0253**	**0.0194**	**0.0240**	
N-Pentane	**0.0097**	**0.0193**	**0.0166**	**0.0122**	**0.0147**	
Nitrogen	**0.2885**	**0.4895**	**0.4602**	**0.3406**	**0.4157**	
Methane	**96.9612**	**95.0759**	**95.3038**	**96.3866**	**95.3884**	
C02	**0.7231**	**0.6884**	**0.6688**	**0.6345**	**0.7606**	
Ethane	**1.5300**	**2.9381**	**2.7829**	**2.0221**	**2.7355**	
Totals	**100.0000**	**100.0000**	**100.0000**	**100.0000**	**100.0000**	
%C	73.97		74.02			
Btu	**1025.5**	**1040.9**	**1039.4**	**1032.0**	**1037.2**	Dry Btu/cf @ 14.
Gravity	**0.5766**	**0.5881**	**0.5865**	**0.5799**	**0.5861**	Real Relative De
Total Sulfur	**3.0228**	**2.1775**	**1.8278**			PPM
	0.1889	**0.1361**	**0.1142**			Grains/hcf
Current H2O	**0.6559**		**2.1064**		**2.2099**	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
1/10/00	8:17 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0371**	**0.0582**	**0.0459**	**0.0437**	**0.0544**	
Propane	**0.3131**	**0.5072**	**0.4489**	**0.3632**	**0.4509**	
Iso-Butane	**0.0670**	**0.0985**	**0.0931**	**0.0745**	**0.0896**	
N-Butane	**0.0656**	**0.0995**	**0.0942**	**0.0740**	**0.0889**	
Iso-Pentane	**0.0198**	**0.0307**	**0.0283**	**0.0234**	**0.0269**	
N-Pentane	**0.0116**	**0.0197**	**0.0175**	**0.0147**	**0.0167**	
Nitrogen	**0.2643**	**0.5007**	**0.3737**	**0.3059**	**0.4017**	
Methane	**96.8488**	**94.7209**	**95.5171**	**96.2065**	**95.3893**	
C02	**0.7341**	**0.7196**	**0.7447**	**0.7325**	**0.7243**	
Ethane	**1.6387**	**3.2451**	**2.6366**	**2.1616**	**2.7574**	
Totals	**100.0000**	**100.0000**	**100.0000**	**100.0000**	**100.0000**	
% C	74.01		74.01			
Btu	**1027.0**	**1043.0**	**1037.7**	**1032.2**	**1038.5**	Dry Btu/cf @ 14.
Gravity	**0.5775**	**0.5900**	**0.5857**	**0.5813**	**0.5862**	Real Relative De
Total Sulfur	**0.0000**	**0.0000**	**2.1007**			PPM
	0.0000	**0.0000**	**0.1313**			Grains/hcf
Current H2O	**0.8492**		**0.0000**		**2.5552**	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/22/99	1:32 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0412**	**0.0578**	**0.1010**	**0.0486**	**0.0569**	
Propane	**0.3546**	**0.4996**	**0.5018**	**0.4398**	**0.4036**	
Iso-Butane	**0.0712**	**0.0945**	**0.1502**	**0.0836**	**0.0820**	
N-Butane	**0.0652**	**0.0889**	**0.1499**	**0.0819**	**0.0777**	
Iso-Pentane	**0.0203**	**0.0299**	**0.1003**	**0.0291**	**0.0268**	
N-Pentane	**0.0117**	**0.0197**	**0.0999**	**0.0194**	**0.0171**	
Nitrogen	**0.3252**	**0.5014**	**0.4963**	**0.3883**	**0.4648**	
Methane	**96.4145**	**94.7714**	**95.1485**	**95.7549**	**95.4581**	
C02	**0.7715**	**0.7759**	**0.9989**	**0.7679**	**0.7675**	
Ethane	**1.9245**	**3.1609**	**2.2531**	**2.3865**	**2.6455**	
Totals	**100.0000**	**100.0000**	**100.0162**	**100.0000**	**100.0000**	
°o C	73.93		73.64			
Btu	**1029.1**	**1041.3**	**1041.1**	**1034.8**	**1035.6**	Dry Btu/cf @ 14.
Gravity	**0.5801**	**0.5898**	**0.5934**	**0.5844**	**0.5857**	Real Relative De
Total Sulfur	**0.0000**	**0.0000**	**2.3329**			PPM
	0.0000	**0.0000**	**0.1458**			Grains/hcf
Current H2O	**1.0503**		**1.8785**		**1.7265**	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/16/99	8:11 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0372**	**0.0484**	**0.0403**	**0.0338**	**0.0461**	
Propane	**0.2710**	**0.3993**	**0.3504**	**0.2783**	**0.3291**	
Iso-Butane	**0.0580**	**0.0726**	**0.0705**	**0.0581**	**0.0676**	
N-Butane	**0.0521**	**0.0677**	**0.0645**	**0.0526**	**0.0635**	
Iso-Pentane	**0.0201**	**0.0265**	**0.0256**	**0.0204**	**0.0232**	
N-Pentane	**0.0121**	**0.0168**	**0.0159**	**0.0130**	**0.0144**	
Nitrogen	**0.3348**	**0.5269**	**0.4476**	**0.3405**	**0.4012**	
Methane	**96.5959**	**95.1176**	**95.5687**	**96.6597**	**95.7989**	
C02	**0.7823**	**0.7238**	**0.7745**	**0.5732**	**0.7301**	
Ethane	**1.8366**	**3.0004**	**2.6419**	**1.9705**	**2.5257**	
Totals	**100.0000**	**100.0000**	**100.0161**	**100.0000**	**100.0000**	
% Carbon	73.87		73.84			
Btu	**1026.2**	**1037.2**	**1033.5**	**1029.3**	**1033.2**	Dry Btu/cf @ 14.7
Gravity	**0.5785**	**0.5867**	**0.5843**	**0.5772**	**0.5829**	Real Relative De
Total Sulfur	**0.0000**	**0.0000**	**2.2571**			PPM
	0.0000	**0.0000**	**0.1411**			Grains/hcf
Current H2O	**1.0564**		**1.9475**		**2.0028**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
12/3/99	11:17 AM

	Perry	Perry	Brooker	Gainsville	West Palm
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream
	Mole%	Mole%	Mole%	Mole%	Mole%
Components					
Hexane	**0.0352**	**0.0504**	**0.0533**	**0.0710**	**0.0568**

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Propane	0.2610	0.3680	0.3575	0.2720	0.4164	
Iso-Butane	0.0611	0.0820	0.0797	0.0643	0.0868	
N-Butane	0.0557	0.0778	0.0788	0.0631	0.0869	
Iso-Pentane	0.0216	0.0324	0.0271	0.0197	0.0305	
N-Pentane	0.0139	0.0210	0.0168	0.0112	0.0205	
Nitrogen	0.2779	0.5326	0.3790	0.2624	0.4601	
Methane	96.9383	95.2920	96.1373	96.7178	95.6113	
C02	0.7552	0.6190	0.7031	0.9584	0.6921	
Ethane	1.5801	2.9247	2.1674	1.5601	2.5385	
Totals	100.0000	100.0000	100.0184	100.0000	100.0000	
% Carbon	73.95		73.99			
Btu	1025.1	1038.0	1032.5	1024.8	1036.3	Dry Btu/cf @ 14.7
Gravity	0.5768	0.5855	0.5818	0.5798	0.5849	Real Relative De
Total Sulfur	0.0000	0.0000	1.8959			PPM
	0.0000	0.0000	0.1185			Grains/hcf
Current H2O	1.2687		0.5732		2.1064	Lbs. Per MMcf

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FGT SYSTEM CHROMATOGRAPHS	
Spot Analysis of Natural Gas for Delivery in Florida	

Date	Time
11/23/99	11:45 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0548**	**0.0552**	**0.0542**	**0.0401**	**0.0538**	
Propane	**0.3744**	**0.3617**	**0.3764**	**0.2823**	**0.4391**	
Iso-Butane	**0.0839**	**0.0796**	**0.0772**	**0.0625**	**0.0869**	
N-Butane	**0.0882**	**0.0789**	**0.0777**	**0.0632**	**0.0919**	
Iso-Pentane	**0.0325**	**0.0289**	**0.0288**	**0.0188**	**0.0271**	
N-Pentane	**0.0219**	**0.0194**	**0.0192**	**0.0111**	**0.0175**	
Nitrogen	**0.2725**	**0.5357**	**0.5040**	**0.2897**	**0.5056**	
Methane	**95.9240**	**95.3899**	**95.3164**	**96.8965**	**95.1365**	
C02	**0.9590**	**0.7432**	**0.7590**	**0.7927**	**0.7130**	
Ethane	**2.1889**	**2.7075**	**2.7871**	**1.5431**	**2.9286**	
Totals	**100.0000**	**100.0000**	**100.0182**	**100.0000**	**100.0000**	
70C	73.82		73.83			
Btu	**1032.1**	**1035.0**	**1035.8**	**1024.9**	**1038.7**	Dry Btu/cf @ F
Gravity	**0.5845**	**0.5856**	**0.5861**	**0.5774**	**0.5872**	Real Relativ
Total Sulfur	**0.0000**	**0.0000**	**4.0891**			PPM
	0.0000	**0.0000**	**0.2556**			Grains/hcf
Current H2O	**0.6361**		**0.9461**		**2.8660**	Lbs. Per

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
11/11/99	6:20 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0373**	**0.0587**	**0.0527**	**0.0444**	**0.0618**	
Propane	**0.2098**	**0.3702**	**0.3487**	**0.2592**	**0.4669**	
Iso-Butane	**0.0493**	**0.0781**	**0.0733**	**0.0600**	**0.0960**	
N-Butane	**0.0447**	**0.0732**	**0.0696**	**0.0546**	**0.1053**	
Iso-Pentane	**0.0197**	**0.0304**	**0.0301**	**0.0236**	**0.0367**	
N-Pentane	**0.0129**	**0.0204**	**0.0199**	**0.0151**	**0.0273**	
Nitrogen	**0.2740**	**0.5533**	**0.5314**	**0.3408**	**0.5119**	
Methane	**97.2083**	**95.1355**	**95.4265**	**96.7409**	**95.5093**	
C02	**0.8160**	**0.7168**	**0.7364**	**0.7742**	**0.8058**	
Ethane	**1.3278**	**2.9634**	**2.7114**	**1.6871**	**2.3790**	
Totals	**100.0000**	**100.0000**	**100.0205**	**100.0000**	**100.0000**	
% C	73.83		73.8			
Btu	**1021.3**	**1037.2**	**1034.5**	**1025.5**	**1035.4**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5753**	**0.5868**	**0.5852**	**0.5780**	**0.5867**	Real Relative Density
Total Sulfur	**0.0000**	**0.0000**	**4.6816**			PPM
	0.0000	**0.0000**	**0.2926**			Grains/hcf
Current H2O	**0.1864**		**1.3605**		**1.8992**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
11/3/99	11:39 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0282**	**0.0409**	**0.0473**	**0.0409**	**0.0457**	
Propane	**0.2682**	**0.3392**	**0.3766**	**0.3728**	**0.3245**	
Iso-Butane	**0.0574**	**0.0707**	**0.0723**	**0.0756**	**0.0670**	
N-Butane	**0.0576**	**0.0734**	**0.0766**	**0.0771**	**0.0639**	
Iso-Pentane	**0.0169**	**0.0270**	**0.0260**	**0.0267**	**0.0254**	
N-Pentane	**0.0103**	**0.0182**	**0.0172**	**0.0174**	**0.0165**	
Nitrogen	**0.2563**	**0.5170**	**0.4325**	**0.3953**	**0.4169**	
Methane	**97.1756**	**95.6385**	**95.7480**	**96.0127**	**95.7778**	
C02	**0.7271**	**0.6821**	**0.7464**	**0.6468**	**0.7780**	
Ethane	**1.4023**	**2.5931**	**2.4570**	**2.3348**	**2.4842**	
Totals	**100.0000**	**100.0000**	**100.0186**	**100.0000**	**100.0000**	
% C	73.98		73.89			
Btu	**1023.8**	**1033.5**	**1033.6**	**1033.8**	**1032.3**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5753**	**0.5835**	**0.5837**	**0.5819**	**0.5833**	Real Relative Density
Total Sulfur	**1.0270**	**3.1360**	**2.0091**			PPM
	0.0642	**0.1960**	**0.1256**			Grains/hcf
Current H2O	**0.3702**		**3.1354**		**3.4530**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
10/6/99	1:21 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0770**	**0.0644**	**0.0634**	**0.0506**	**0.0570**	
Propane	**0.7735**	**0.5079**	**0.5021**	**0.3434**	**0.4663**	
Iso-Butane	**0.1812**	**0.1132**	**0.1054**	**0.0768**	**0.0976**	
N-Butane	**0.1814**	**0.1188**	**0.1145**	**0.0836**	**0.1094**	
Iso-Pentane	**0.0557**	**0.0374**	**0.0350**	**0.0265**	**0.0348**	
N-Pentane	**0.0351**	**0.0248**	**0.0236**	**0.0169**	**0.0236**	
Nitrogen	**0.2505**	**0.5217**	**0.4711**	**0.2462**	**0.4804**	
Methane	**94.8370**	**94.5372**	**94.9015**	**96.7198**	**95.2449**	
C02	**0.9096**	**0.7324**	**0.7472**	**0.7445**	**0.7505**	
Ethane	**2.6989**	**3.3422**	**3.0361**	**1.6917**	**2.7354**	
Totals	**100.0000**	**100.0000**	**100.0250**	**100.0000**	**100.0000**	
Btu	**1049.2**	**1044.8**	**1042.3**	**1029.5**	**1038.7**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5944**	**0.5916**	**0.5897**	**0.5791**	**0.5876**	Real Relative Density
Total Sulfur	**1.0270**	**3.1360**	**2.8000**			PPM
	0.0642	**0.1960**	**0.1750**			Grains/hcf
Current H2O	**0.0035**		**0.0000**		**6.1464**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
9/30/99	6:19 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0453**	**0.0623**	**0.0656**	**0.0502**	**0.0546**	
Propane	**0.3230**	**0.4867**	**0.5366**	**0.3958**	**0.4891**	
Iso-Butane	**0.0703**	**0.0988**	**0.1048**	**0.0892**	**0.1033**	
N-Butane	**0.0688**	**0.1002**	**0.1061**	**0.0870**	**0.1063**	
Iso-Pentane	**0.0248**	**0.0323**	**0.0370**	**0.0265**	**0.0316**	
N-Pentane	**0.0161**	**0.0218**	**0.0251**	**0.0168**	**0.0202**	
Nitrogen	**0.2629**	**0.5530**	**0.5011**	**0.2784**	**0.5299**	
Methane	**96.7850**	**94.6722**	**94.8201**	**96.4197**	**95.0949**	
C02	**0.7258**	**0.6451**	**0.6423**	**0.7126**	**0.7059**	
Ethane	**1.6779**	**3.3275**	**3.1614**	**1.9239**	**2.8643**	
Totals	**100.0000**	**100.0000**	**100.0246**	**100.0000**	**100.0000**	
Btu	**1028.3**	**1043.8**	**1044.5**	**1032.4**	**1039.8**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5783**	**0.5899**	**0.5897**	**0.5808**	**0.5881**	Real Relative Density
Total Sulfur	**1.0270**	**3.1360**	**2.8000**			PPM
	0.0642	**0.1960**	**0.1750**			Grains/hcf
Current H2O	**3.9311**		**0.6906**		**2.6934**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
9/13/99	9:38 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0342**	**0.0505**	**0.0506**	**0.0402**	**0.0433**	
Propane	**0.3268**	**0.4660**	**0.4270**	**0.3656**	**0.4775**	
Iso-Butane	**0.0758**	**0.0962**	**0.0885**	**0.0845**	**0.1004**	
N-Butane	**0.0759**	**0.1078**	**0.0994**	**0.0856**	**0.1162**	
Iso-Pentane	**0.0204**	**0.0288**	**0.0254**	**0.0226**	**0.0299**	
N-Pentane	**0.0122**	**0.0204**	**0.0170**	**0.0133**	**0.0210**	
Nitrogen	**0.2509**	**0.4283**	**0.4278**	**0.2315**	**0.4610**	
Methane	**96.8040**	**95.4136**	**95.5509**	**96.7469**	**95.4330**	
C02	**0.7768**	**0.7050**	**0.7115**	**0.7297**	**0.6731**	
Ethane	**1.6229**	**2.6835**	**2.6019**	**1.6800**	**2.6446**	
Totals	**100.0000**	**100.0000**	**100.0162**	**100.0000**	**100.0000**	
Btu	**1027.2**	**1038.7**	**1036.9**	**1029.6**	**1038.6**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5782**	**0.5863**	**0.5852**	**0.5788**	**0.5861**	Real Relative Density
Total Sulfur	**1.0270**	**3.1360**	**2.8000**			PPM
	0.0642	**0.1960**	**0.1750**			Grains/hcf
Current H2O	**3.1777**		**0.9185**		**0.0000**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
8/24/99	11:51 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0528**	**0.0612**	**0.0586**	**0.0567**	**0.0650**	
Propane	**0.4241**	**0.5438**	**0.5378**	**0.5112**	**0.5810**	
Iso-Butane	**0.0996**	**0.1243**	**0.1164**	**0.1092**	**0.1206**	
N-Butane	**0.0983**	**0.1489**	**0.1275**	**0.1157**	**0.1285**	
Iso-Pentane	**0.0322**	**0.0393**	**0.0340**	**0.0344**	**0.0355**	
N-Pentane	**0.0203**	**0.0277**	**0.0225**	**0.0230**	**0.0246**	
Nitrogen	**0.2609**	**0.4699**	**0.4562**	**0.3861**	**0.4664**	
Methane	**96.2941**	**95.0410**	**95.2362**	**95.5085**	**95.0649**	
C02	**0.8763**	**0.6529**	**0.6538**	**0.7490**	**0.7047**	
Ethane	**1.8413**	**2.8909**	**2.7570**	**2.5063**	**2.8087**	
Totals	**100.0000**	**100.0000**	**100.0231**	**100.0000**	**100.0000**	
Btu	**1031.6**	**1044.1**	**1042.1**	**1039.0**	**1043.0**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5828**	**0.5894**	**0.5879**	**0.5867**	**0.5894**	Real Relative Density
Total Sulfur	**1.0090**	**0.4910**	**2.8000**			PPM
	0.0631	**0.0307**	**0.1750**			Grains/hcf
Current H2O	**0.5687**		**1.9406**		**0.0000**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

Date	Time
8/11/99	8:47 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0439**	**0.0616**	**0.0590**	**0.0467**	**0.0683**	
Propane	**0.3392**	**0.4647**	**0.4663**	**0.2709**	**0.3989**	
Iso-Butane	**0.0754**	**0.0857**	**0.0925**	**0.0679**	**0.0843**	
N-Butane	**0.0681**	**0.0822**	**0.0930**	**0.0603**	**0.0793**	
Iso-Pentane	**0.0239**	**0.0337**	**0.0319**	**0.0246**	**0.0320**	
N-Pentane	**0.0145**	**0.0212**	**0.0219**	**0.0149**	**0.0209**	
Nitrogen	**0.2507**	**0.4662**	**0.4186**	**0.2491**	**0.4516**	
Methane	**96.7842**	**95.1065**	**95.4107**	**96.8029**	**95.3136**	
C02	**0.7690**	**0.6701**	**0.7057**	**0.7250**	**0.7177**	
Ethane	**1.6311**	**3.0081**	**2.7005**	**1.7377**	**2.8334**	
Totals	**100.0000**	**100.0000**	**100.0212**	**100.0000**	**100.0000**	
Btu	**1027.9**	**1041.0**	**1039.0**	**1027.9**	**1038.4**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5785**	**0.5875**	**0.5864**	**0.5778**	**0.5865**	Real Relative Density
Total Sulfur	**0.7570**	**1.0340**	**2.8000**			PPM
	0.0473	**0.0646**	**0.1750**			Grains/hcf
Current H2O	**0.5687**		**2.5276**		**0.0000**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

	Date	Time
	7/23/99	7:54 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0567**	**0.0727**	**0.0746**	**0.0483**	**0.0688**	
Propane	**0.3312**	**0.4992**	**0.4344**	**0.3423**	**0.4705**	
Iso-Butane	**0.0826**	**0.1096**	**0.0970**	**0.0824**	**0.1044**	
N-Butane	**0.0729**	**0.1102**	**0.0897**	**0.0788**	**0.1069**	
Iso-Pentane	**0.0302**	**0.0408**	**0.0388**	**0.0274**	**0.0341**	
N-Pentane	**0.0199**	**0.0287**	**0.0279**	**0.0169**	**0.0213**	
Nitrogen	**0.2612**	**0.4524**	**0.4262**	**0.2808**	**0.4385**	
Methane	**96.5787**	**95.1458**	**95.4690**	**96.4521**	**95.2670**	
C02	**0.7837**	**0.5658**	**0.6383**	**0.7398**	**0.6597**	
Ethane	**1.7828**	**2.9749**	**2.7041**	**1.9311**	**2.8288**	
Totals	**100.0000**	**100.0000**	**100.0274**	**100.0000**	**100.0000**	
Btu	**1029.8**	**1044.5**	**1040.2**	**1030.8**	**1041.4**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5801**	**0.5880**	**0.5862**	**0.5803**	**0.5874**	Real Relative Density
Total Sulfur	**N/A**	**N/A**	N/A			PPM
	N/A	**N/A**	**N/A**			Grains/hcf
Current H2O	**1.0961**		**1.2776**		**2.5552**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

	Date	Time
	7/12/99	12:18 PM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0570**	**0.0607**	**0.0660**	**0.0550**	**0.0655**	
Propane	**0.3973**	**0.4974**	**0.5038**	**0.4407**	**0.5397**	
Iso-Butane	**0.0906**	**0.0979**	**0.1006**	**0.0902**	**0.1040**	
N-Butane	**0.0919**	**0.1000**	**0.1037**	**0.0943**	**0.1048**	
Iso-Pentane	**0.0327**	**0.0309**	**0.0321**	**0.0311**	**0.0321**	
N-Pentane	**0.0220**	**0.0205**	**0.0202**	**0.0220**	**0.0213**	
Nitrogen	**0.2552**	**0.5135**	**0.4684**	**0.3387**	**0.4509**	
Methane	**96.3134**	**94.8700**	**94.9456**	**95.8567**	**94.9503**	
C02	**0.8060**	**0.6266**	**0.6598**	**0.5187**	**0.6630**	
Ethane	**1.9338**	**3.1826**	**3.1000**	**2.5525**	**3.0683**	
Totals	**100.0000**	**100.0000**	**100.0211**	**100.0000**	**100.0000**	
Btu	**1032.6**	**1043.3**	**1043.3**	**1040.0**	**1043.8**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5822**	**0.5888**	**0.5889**	**0.5831**	**0.5891**	Real Relative Density
Total Sulfur	**0.6920**	**1.4820**	**2.8000**			PPM
	0.0432	**0.0926**	**0.1750**			Grains/hcf
Current H2O	**1.6191**		**2.2928**		**3.1768**	Lbs. Per MMcf

FGT SYSTEM CHROMATOGRAPHS

Spot Analysis of Natural Gas for Delivery in Florida

	Date	Time
	7/7/99	8:33 AM

	Perry	Perry	Brooker	Gainsville	West Palm	
	36" Stream #1	30" Stream #2	24" Stream	8" Stream	24" Stream	
	Mole%	Mole%	Mole%	Mole%	Mole%	
Components						
Hexane	**0.0355**	**0.0556**	**0.0540**	**0.0543**	**0.0597**	
Propane	**0.3281**	**0.5068**	**0.4868**	**0.5075**	**0.5072**	
Iso-Butane	**0.0746**	**0.1007**	**0.0948**	**0.0947**	**0.0993**	
N-Butane	**0.0718**	**0.1049**	**0.0992**	**0.0984**	**0.1046**	
Iso-Pentane	**0.0207**	**0.0288**	**0.0280**	**0.0282**	**0.0288**	
N-Pentane	**0.0125**	**0.0192**	**0.0180**	**0.0187**	**0.0188**	
Nitrogen	**0.2524**	**0.4533**	**0.4500**	**0.4286**	**0.4752**	
Methane	**96.6698**	**95.1051**	**95.1740**	**95.1923**	**95.0719**	
C02	**0.7814**	**0.6382**	**0.6491**	**0.7077**	**0.6640**	
Ethane	**1.7532**	**2.9874**	**2.9462**	**2.8697**	**2.9705**	
Totals	**100.0000**	**100.0000**	**100.0189**	**100.0000**	**100.0000**	
Btu	**1028.1**	**1042.3**	**1041.2**	**1040.6**	**1041.8**	Dry Btu/cf @ 14.730 psia and 60 degrees F
Gravity	**0.5789**	**0.5878**	**0.5872**	**0.5875**	**0.5881**	Real Relative Density
Total Sulfur	**0.6920**	**1.4820**	**2.8000**	PPM		
	0.0432	**0.0926**	**0.1750**	Grains/hcf		
Current H2O	**1.2531**		**1.8646**		**2.9696**	Lbs. Per MMcf

Florida Power
CORPORATION

January 27, 2000

Ms. Kathy Carter, Clerk
Office of General Counsel
Florida Department of Environmental Protection
Room 638
3900 Commonwealth Blvd.
Tallahassee, FL 32399-3000

Dear Ms. Carter:

RE: Florida Power Corporation, Hines Energy Complex
REQUEST FOR EXTENSION OF TIME on the *Intent to Issue Initial Title V Air Permit*
Draft Permit No. 1050234-001-AV

On December 8, 1999, Florida Power Corporation (FPC) received the above-referenced *Intent to Issue Initial Title V Air Operation Permit*. A review of the permit conditions has revealed that several issues remain to be resolved. Accordingly, FPC requests an extension of time, pursuant to Florida Administrative Code Rule 62-110.106(4), to and including February 29, 2000, in which to file a Petition for Administrative Proceedings in the above-styled matter. Granting of this request will not prejudice either party, but will further both parties' mutual interest by hopefully avoiding the need to actually file a Petition for Administrative Proceeding in this matter. If the Department denies this request, FPC requests the opportunity to file a Petition for Administrative Proceeding within 10 days of such denial.

If you should have any questions, please contact Mr. Scott Osbourn of FPC at (727) 826-4258.

Sincerely,

W. Jeffrey Pardue, C.E.P.
Director, Environmental Services Department
Title V Responsible Official

Robert A. Manning, Esq.
Hopping Green Sams & Smith

cc: Scott Sheplak, DEP
Doug Beason, DEP OGC
2/1/00 cc: Scott Sheplak
Russell Wilder

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CORPORATION

December 29, 1999

Mr. Scott M. Sheplak, P.E.
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, Florida 32399-2400

Dear Mr. Sheplak:

Re: FPC Hines Energy Complex, *Notice of Intent to Issue Title V Air Operation Permit*
Title V Draft Permit No. 105234-001-AV

Enclosed please find the notarized proof of publication received from the Lakeland Ledger for the Florida Department of Environmental Protection *Notice of Intent to Issue Title V Air Operation Permit* referenced to the above request. The notice was published on December 15, 1999.

If you should have any questions concerning this correspondence, please do not hesitate to contact me at (727) 826-4258.

Sincerely,

Scott H. Osbourn
Senior Environmental Engineer

cc: William Thomas, DEP SW District (w/attach)
Robert Manning, HGS&S

Attachment

1/5/00 cc: Russell Wilder

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DEC 15 1999
BUREAU OF AIR REGULATION

December 10, 1999

Ms. Kathy Carter, Clerk
Office of General Counsel
Florida Department of Environmental Protection
Room 638
3900 Commonwealth Blvd.
Tallahassee, FL 32399-3000

Dear Ms. Carter:

RE: Florida Power Corporation, Hines Energy Complex
REQUEST FOR EXTENSION OF TIME on the *Intent to Issue Initial Title V Air Permit*
Draft Permit No. 1050234-001-AV

On December 8, 1999, Florida Power Corporation (FPC) received the above-referenced *Intent to Issue Initial Title V Air Operation Permit*. A review of the permit conditions has revealed that several issues remain to be resolved. Accordingly, FPC requests an extension of time, pursuant to Florida Administrative Code Rule 62-110.106(4), to and including January 31, 2000, in which to file a Petition for Administrative Proceedings in the above-styled matter. Granting of this request will not prejudice either party, but will further both parties' mutual interest by hopefully avoiding the need to actually file a Petition for Administrative Proceeding in this matter. If the Department denies this request, FPC requests the opportunity to file a Petition for Administrative Proceeding within 10 days of such denial.

If you should have any questions, please contact Mr. Scott Osbourn of FPC at (727) 826-4258.

Sincerely,

W. Jeffrey Pardue, C.E.P.
Director, Environmental Services Department
Title V Responsible Official

Robert A. Manning

Robert A. Manning, Esq.
Hopping Green Sams & Smith

cc: Scott Sheplak, DEP
Doug Beason, Esq., DEP, OGC
12/21/99 cc: Russell Wider

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BUREAU OF AIR REGULATION

Florida Power
CORPORATION

August 27, 1999

Mr. Scott M. Sheplak, P.E.
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, Florida 32399-2400

Dear Mr. Sheplak:

Re: Florida Power Corporation Hines Energy Complex, Polk County
Initial Title V Permit; DEP File No. 1050234-AV

Florida Power Corporation (FPC) is in receipt of a letter from the Department, dated March 9, 1999, acknowledging receipt of the above-referenced application. The Department's letter requests additional information in order to continue with the processing of a Title V permit for FPC's Hines facility. FPC had previously requested additional time to respond due to the reasons stated below. This letter serves to provide the requested information.

The initial compliance testing was not yet complete at the time that the application for a Title V permit was submitted. FPC has attached a summary of emission test results for the two combustion turbines (on both fuel oil and natural gas) and the auxiliary boiler. These summaries are included as Attachment HEC-EU1-L5. The complete test reports were transmitted to the Department's Tallahassee office on May 14, 1999. In addition, information is attached regarding Title VI applicability (Attachment HEC-FE-8) and a description of storage tanks onsite (Attachment HEC-EU5-B6).

In addition, recall that on May 27, 1999, the Department issued a revision to the original construction permit. This revision allowed for a higher heat input limit and a longer period of allowable time for excess emissions due to start-ups. A copy of the permit revision is attached (Attachment HEC-FE-11- Additional Applicable Requirements), as well as revised permit application sheets to reflect these changes.

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The Department has indicated that FPC should evaluate the applicability of the CAM rule (40 CFR Part 64) to these particular units. Based on a review of the rule's applicability criteria, FPC believes that these units are exempt from the CAM rule. Specifically, the pollutant for which the control device was intended is continuously monitored. Therefore, the monitoring of surrogate parameters for compliance determination isn't necessary.

Due to the nature of the information requested by the Department, this transmittal has been certified by FPC's Responsible Official, Mr W. Jeffrey Pardue. In addition, a P.E. certification statement has been prepared by Ms. Jennifer Tillman, and accompanies this transmittal.

If you should have any questions, please do not hesitate to contact me at (727) 826-4258.

Sincerely,

Scott H. Osbourn
Senior Environmental Engineer

Attachments

cc: Mike Halpin, DEP Tallahassee
Jerry Kissel, DEP SW District
Robert Manning, HGS&S

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:

   W. Jeffrey Pardue, C.E.P.
   Director, Environmental Services

2. Owner/Authorized Representative or Responsible Official Mailing Address:

   Organization/Firm: Florida Power Corporation
   Street Address: P.O. Box 14042, MAC BB1A
   City: St. Petersburg State: FL Zip Code: 33733

3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: (727) 826 - 4301 Fax: (727) 826 - 4216

4. Owner/Authorized Representative or Responsible Official Statement:

   I, the undersigned, am the owner or authorized representative of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Signature

8/27/99
Date

* Attach letter of authorization if not currently on file.

Florida
Power
CORPORATION

Kenneth E. Armstrong
Vice President and General Counsel

March 31, 1998

TO WHOM IT MAY CONCERN:

Subject: Letter of Authorization

Please be advised that W. Jeffrey Pardue, Director, Environmental Services Department; Sharon K. Momberg, Manager of Waste Management Programs; Kent D. Hedrick, Manager of Water Programs; and J. Michael Kennedy, Manager of Air Programs, are authorized to represent Florida Power Corporation in matters relating to necessary permits and reporting documentation required from regulatory authorities in the areas of air, water, power plant site certifications and transmission line certifications, or hazardous and solid materials issues.

Very truly yours,

Kenneth E. Armstrong

Kenneth E. Armstrong

K:\KEA\MISC\pardue.esd

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4. Professional Engineer Statement:

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

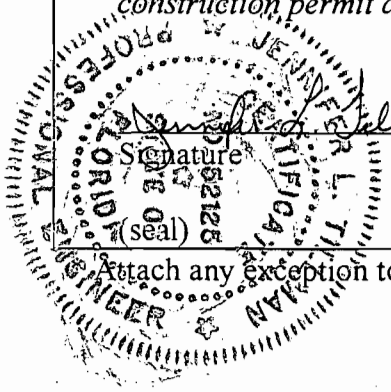
(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions 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 8/27/99 Date

(seal)

Attach any exception to certification statement.

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:	
2. Long-term Reserve Shutdown Date:	
3. Package Unit: Manufacturer: Westinghouse	Model Number: 501F
4. Generator Nameplate Rating: 170 MW	
5. Incinerator Information: Dwell Temperature:	°F
Dwell Time:	seconds
Incinerator Afterburner Temperature:	°F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	1,866	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): Heat input is HHV; heat input at 59 degree F turbine inlet temperature; MW nominal rating. Heat input for oil is 1,999 MMBtu/hr at 59 degrees F (HHV).		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:			
	hours/day		days/week
	weeks/yr	8,760	hours/yr

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

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Natural Gas**	
2. Source Classification Code (SCC): **2-01-002-01**	
3. SCC Units: **Million Cubic Feet**	
4. Maximum Hourly Rate: **1.78**	5. Maximum Annual Rate: **15,568**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **1,050**	
10. Segment Comment (limit to 200 characters): **Based on 1,050 BTU/CF (HHV); maximum hourly and annual at 59 degrees F; turbine inlet temperatures.**	

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Distillate Fuel Oil**	
2. Source Classification Code (SCC): **2-01-001-01**	
3. SCC Units: **1,000 Gallons Used**	
4. Maximum Hourly Rate: **15.5**	5. Maximum Annual Rate: **6,881**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: **0.05**	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **129**	
10. Segment Comment (limit to 200 characters): **BTU based on HHV of 129 MMBtu/1,000 gallons. Aggregate fuel usage of 13,762,806 gallons per year authorized for Power Block 1**	

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date:	
2. Long-term Reserve Shutdown Date:	
3. Package Unit: Manufacturer: Westinghouse	Model Number: 501F
4. Generator Nameplate Rating: 170 MW	
5. Incinerator Information:	
Dwell Temperature:	°F
Dwell Time:	seconds
Incinerator Afterburner Temperature:	°F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:		1,866	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr		tons/day
3. Maximum Process or Throughput Rate:			
4. Maximum Production Rate:			
5. Operating Capacity Comment (limit to 200 characters):			

Heat input is HHV; heat input at 59 degree F turbine inlet temperature; MW nominal rating. Heat input for oil is 1,999 MMBtu/hr at 59 degrees F (HHV).

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:			
	hours/day		days/week
	weeks/yr	8,760	hours/yr

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

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters):

   Natural Gas

2. Source Classification Code (SCC):

   2-01-002-01

3. SCC Units:

   Million Cubic Feet

4. Maximum Hourly Rate:	5. Maximum Annual Rate:
1.78	**15,568**

6. Estimated Annual Activity Factor:

7. Maximum Percent Sulfur:	8. Maximum Percent Ash:

9. Million Btu per SCC Unit:

   1,050

10. Segment Comment (limit to 200 characters):

    Based on 1,050 BTU/CF (HHV); maximum hourly and annual at 59 degrees F; turbine inlet temperatures.

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **Distillate Fuel Oil**	
2. Source Classification Code (SCC): **2-01-001-01**	
3. SCC Units: **1,000 Gallons Used**	
4. Maximum Hourly Rate: **15.5**	5. Maximum Annual Rate: **6,881**
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: **0.05**	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: **129**	
10. Segment Comment (limit to 200 characters): **BTU based on HHV of 129 MMBtu/1,000 gallons. Aggregate fuel usage of 13,762,806 gallons per year authorized for Power Block 1**	

ATTACHMENT HEC-FE-11

ADDITIONAL APPLICABLE REQUIREMENTS

JMK

RECEIVED

JUN 01 1999

Environmental Svcs Department

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF FINAL PERMIT

In the Matter of an
Application for Permit by:

Florida Power Corporation
One Power Plaza
263 13th Avenue South
St. Petersburg, Florida 33701

DEP File No.1050234-002-AC, PSD-FL-195A
Hines Energy Complex Power Block 1
Polk County

Enclosed is Final Permit Number 1050234-002-AC. This permit authorizes Florida Power Corporation to operate the Hines Energy Complex with increased heat inputs, megawatt ratings and startup times. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order has the right to seek judicial review of it under section 120.68 of the Florida Statutes, by filing a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, 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 must be filed within thirty days after this order 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 (including the Final permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 5-27-99 to the person(s) listed:

Mr. Jeffrey Pardue, Florida Power Corporation *
Ms. Jennifer Tillman, P.E., Florida Power Corporation *
Bill Thomas, P.E., DEP-SWD
Mr. Gregg Worley, EPA
Mr. John Bunyak, NPS

Clerk Stamp

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

(Clerk) 5-27-99 (Date)

FINAL DETERMINATION

Florida Power Corporation
Hines Energy Complex
DEP File No. 1050234-002-AC, PSD-FL-195A

The Department distributed a public notice package on May 10, 1999 to allow the applicant to modify its permit at the Hines Energy Complex located in Polk County. The Public Notice of Intent to Issue was published in the Lakeland Ledger on May 12, 1999.

COMMENTS/CHANGES

No comments were received by the Department from the public.

No comments were received from the EPA.

Comments were received from the applicant by electronic correspondence dated May 25, 1999.

A meeting was held on May 26, 1999 between the Department, the applicant's representatives to discuss the comments. These comments were minor in nature, representing only a clarification of the applicant's request.

The Department determined that minor corrections or changes must be made to the draft permit text to clarify the original requirements. The corrections or changes are summarized below.

Specific Condition B.3.: A description was provided for a warm start along with the corresponding startup requirements.

CONCLUSION

The final action of the Department is to issue the permit with the changes described above.

Department of Environmental Protection

Jeb Bush
Governor

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

David B. Struhs
Secretary

May 27, 1999

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. W. Jeffrey Pardue
Director, Environmental Services
FPC -Hines Energy Complex
One Power Plaza
263 13th Avenue South
St. Petersburg, Florida 33701

Re: DEP File No. PSD-FL-195A; Modification of Permit No. PSD-FL-195A
Hines Energy Complex / Polk County

The applicant, Florida Power Corporation, applied on May 4, 1999, to the Department for a modification to air construction permit number PSD-FL-195A for its Hines Energy Complex located in Polk, County. The modification is to allow the facility to utilize the fully installed capacity of the combined cycle units by modifying the maximum heat input ratings and maximum megawatt ratings. Additionally, testing has shown that the allotted startup time of 2 hours is inadequate for warm and cold starts and increased times are requested. The Department has reviewed the modification request. The referenced permit is hereby modified as follows:

Permit Cover Letter: Multiple changes. A revised cover letter is included for clarity following the Specific Condition changes below.

Specific Condition Introductory text changes as follow:

From: The construction and operation of the Hines Energy Complex (Project) shall be in accordance with all applicable provisions of Chapters 62-210 to 297, F.A.C. and NSPS Subparts GG, Dc, and Kb. The following emission limitations and conditions reflect BACT determinations for the Power Block 1- 485 MW (two combined cycle combustion turbines and auxiliary equipment) of generating capacity for which the need has been determined. BACT determinations for the remaining phases will be made upon review of supplemental applications. In addition to the foregoing, the Project shall comply with the following conditions of certification as indicated.

To: The construction and operation of the Hines Energy Complex (Project) shall be in accordance with all applicable provisions of Chapters 62-210 to 297, F.A.C. and NSPS Subparts GG, Dc, and Kb. The following emission limitations and conditions reflect BACT determinations for the Power Block 1- 500 MW (two combined cycle combustion turbines and auxiliary equipment) of generating capacity for which the need has been determined. BACT determinations for the remaining phases will be made upon review of supplemental applications. In addition to the foregoing, the Project shall comply with the following conditions of certification as indicated.

Specific Condition A.1.

From: The maximum heat input (HHV) to each combustion turbine (CT) at an ambient temperature of 59° F shall neither exceed 1,757 MMBtu/hr while firing natural gas, nor 1,846 MMBtu/hr while firing fuel oil. Heat input may vary depending on ambient conditions and the CT characteristics. Manufacturer's curves or equations for correction to other temperatures shall be provided to DEP for review 90 days after selection of the CT. Subject to approval by the Department for technical validity applying sound engineering principles, the manufacturer's curves shall be used to establish heat input rates over a range of temperatures for the purpose of compliance determination.

To: The maximum heat input (HHV) to each combustion turbine (CT) at an ambient temperature of 59° F shall neither exceed 1,866 MMBtu/hr while firing natural gas, nor 1,999 MMBtu/hr while firing fuel oil. Heat input may vary depending on ambient conditions and the CT characteristics. Manufacturer's curves or equations for correction to other temperatures shall be provided to DEP for review 90 days after selection of the CT. Subject to approval by the Department for technical validity applying sound engineering principles, the manufacturer's curves shall be used to establish heat input rates over a range of temperatures for the purpose of compliance determination.

Specific Condition A.8.

From: If site construction does not commence on Power Block 1 (485 MW)within 18 months of issuance of this permit, then FPC may request an extension of the 18-month period, provided that such request is received by the Department's Bureau of Air Regulation at least 90 days prior to the expiration date. Such a request shall identify the progress made toward commencement of the construction of the site and the expected time required to start and complete construction of the initial phase. The Department may grant the extension upon a satisfactory showing that the extension is justified.

To: If site construction does not commence on Power Block 1 (500 MW) within 18 months of issuance of this permit, then FPC may request an extension of the 18-month period, provided that such request is received by the Department's Bureau of Air Regulation at least 90 days prior to the expiration date. Such a request shall identify the progress made toward commencement of the construction of the site and the expected time required to start and complete construction of the initial phase. The Department may grant the extension upon a satisfactory showing that the extension is justified.

Specific Condition B.3.

From: Excess emissions from a turbine resulting from start up, shutdown, malfunction, or load change shall be acceptable providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for a longer duration. The permittee shall provide a general description of the procedures to be followed during periods of start up, shutdown, malfunction, or load change to ensure that the best operational practices to minimize emissions will be adhered to and the duration of any excess emissions will be minimized. The description should be submitted to the Department along with the initial compliance test data. The description may be updated as needed by submitting such update to the Department within thirty (30) days of implementation.

To: Excess emissions resulting from startup, shutdown, or malfunction shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized. Excess emissions occurrences shall in no case exceed two hours in any 24-hour period except in the event that the steam turbine has been shut down for 8 hours or more. During a cold start-up to combined cycle operation, up to four hours of excess emissions are allowed in a 24-hour period. Cold start-up is defined as a startup to combined cycle operation following a steam turbine shutdown lasting at least 48 hours. During a warm start-up to combined cycle operation, up to three hours of excess emissions are allowed in a 24-hour period. Warm start-up is defined as a startup to combined cycle operation following a steam turbine shutdown lasting at least 8 hours. [Applicant Request, Vendor Combined Cycle Startup Curves Data and Rule 62-210.700, F.A.C.].

A copy of this letter shall be filed with the referenced permit and shall become part of the permit. This permit modification is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit modification) has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel, Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000, 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 must be filed within thirty days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida.

Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this permit modification was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 5-27-99 to the person(s) listed:

W. Jeffrey Pardue, Florida Power Corporation *
Jennifer Tillman, P.E., Florida Power Corporation *
Doug Neely, EPA
John Bunyak, NPS
Bill Thomas, P.E., DEP-SWD
Mr. Gregg Worley, EPA

Clerk Stamp

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

(Clerk) 5-27-99 (Date)

PERMITTEE:
Florida Power Corporation
3201 34th Street South
St. Petersburg, FL 33733

Permit Number:	**PSD-FL-195A/PA-92-33**
Issued:	**3/1/94 Revised: 5/11/99**
Expiration Date:	**November 1, 2000**
County:	**Polk**
Latitude/Longitude:	**27°47'19"N/81°52'10"W**
Project:	**500 MW Combined Cycle**

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-212 and 62-4. 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 specifically described as follows:

For two combined cycle combustion turbines (CTs) with maximum allowable heat input based on the higher heating value (HHV) at 59°F of 1,866 MMBtu/hr/unit (natural gas) and 1,999 MMBtu/hr/unit (oil) to be located at the Hines Energy Complex near Fort Meade, Florida. Power Block 1 consists of two combined cycle combustion turbines for a total of 500 MW, a 99 MMBtu/hr auxiliary boiler (Subpart Dc), a 1,300 kW diesel generator and a 97,570 barrel fuel oil storage tank (Subpart Kb). The combustion turbines are Westinghouse Model 501FC or equivalent and rated at approximately 165 MW in simple cycle and equipped with dry low NO_X combustors and/or Selective Catalytic Reduction (SCR) for natural gas firing and wet injection for fuel oil firing. Each combustion turbine will incorporate an unfired heat recovery steam generator.

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

Howard L. Rhodes, Director
Division of Air Resources
Management

Relevant documents are listed below:

1. FPC application received August 4, 1992 and revision received May 4, 1999.
2. The Department's letters dated August 31 and November 13, 1992.
3. FPC's letters dated October 13 and November 30, 1992; June 27 and September 9, 1996; February 18 and June 30, 1998; and the SCR Technical Specification received August 3, 1998.
4. Westinghouse 501FC tables or curves showing Heat Input vs. Compressor Inlet Temperature and Nitrogen Oxide Emissions vs. Compressor Inlet Temperature shall be attachments to and are part of this permit.

File: Hines/Air/Permit

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

In the Matter of an
Application for Permit Modification

Mr. W. Jeffrey Pardue
Director of Environmental Services Dept.
Florida Power Corporation
3201 34th Street South
St. Petersburg, Florida 33733

Permit: PSD-FL-195A / PA-92-33

Enclosed is the Final Permit Modification which reflects the use of SCR and the technical specifications of the new Westinghouse combined cycle combustion turbines. This permit is issued pursuant to Chapter 403, Florida Statutes and 62-4 through 297 F.A.C and 40 CFR 52.21-Prevention of Significant Deterioration (PSD).

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 (including the FINAL permit) was sent by certified mail (*) and copies were mailed by U.S. Mail before the close of business on 9-29-98 to the person(s) listed:

Mr. W Jeffrey Pardue *
Mr. Doug Neeley, EPA
Mr. John Bunyak, NPS
Mr. Bill Thomas, SWD
Mr. Hamilton Oven, OSC

Clerk Stamp

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

(Clerk) 9-29-98 (Date)

FINAL DETERMINATION

Florida Power Corporation

Permit Modification for Westinghouse CTs with SCR and Other Changes
Hines Energy Complex
Combined Cycle Project
Power Block 1

Polk County

Construction Permit No. PSD-FL-195A / PA-92-33

Florida Power Corporation submitted an application to modify permit No. PSD-FL-195 to install a Selective Catalytic Reduction (SCR) system and to reflect the technical specifications of the combustion turbines installed at its Combined Cycle Facility located near Fort Meade, Polk County.

No comments were received during the public notice period. With this action the Department modifies the construction permit in accordance with the Intent To Issue PSD Permit Modification with the following minor changes:

1. The custom fuel monitoring schedule has been revised to reflect recent guidance from EPA.
2. Minor clarifications were made to certain Specific Conditions regarding testing.

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

PERMITTEE:
Florida Power Corporation
3201 34th Street South
St. Petersburg, FL 33733

Permit Number: PSD-FL-195A/PA-92-33
Issued: 3/1/94 **Revised:** 9/28/98
Expiration Date: November 1, 2000
County: Polk
Latitude/Longitude: 27°47'19"N/81°52'10"W
Project: 485 MW Combined Cycle

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 62-212 and 62-4. 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 specifically described as follows:

For two combined cycle combustion turbines (CTs) with maximum allowable heat input based on the higher heating value (HHV) at 59°F of 1,757 MMBtu/hr/unit (natural gas) and 1,846 MMBtu/hr/unit (oil) to be located at the Hines Energy Complex near Fort Meade, Florida. Power Block 1 consists of two combined cycle combustion turbines for a total of 485 MW, a 99 MMBtu/hr auxiliary boiler(Subpart Dc), a 1,300 KW diesel generator and a 97,570 barrel fuel oil storage tank(Subpart Kb). The combustion turbines are Westinghouse Model 501FC or equivalent and rated at approximately 165 MW in simple cycle and equipped with dry low NO_X combustors and/or Selective Catalytic Reduction (SCR) for natural gas firing and wet injection for fuel oil firing. Each combustion turbine will incorporate an unfired heat recovery steam generator.

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

Howard L. Rhodes, Director
Division of Air Resources Management

Relevant documents are listed below:

1. Florida Power Corporation (FPC) application received August 4, 1992.
2. The Department's letters dated August 31 and November 13, 1992.
3. FPC's letters dated October 13 and November 30, 1992; June 27 and September 9, 1996; February 18 and June 30, 1998; and the SCR Technical Specification received August 3, 1998.

4. Westinghouse 501FC tables or curves showing Heat Input vs. Compressor Inlet Temperature and Nitrogen Oxide Emissions vs Compressor Inlet Temperature shall be attachments to and are part of this permit.

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 acknowledgment 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.

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.

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 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

    (X) Determination of Best Available Control Technology (BACT)
    (X) Determination of Prevention of Significant Deterioration (PSD)
    (X) Compliance with New Source Performance Standards(NSPS)

14. The permittee shall comply with the following:
    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
    c. Records of monitoring information shall include:
       - the date, exact place, and time of sampling or measurements;
       - the person responsible for performing the sampling or measurements;

- the dates analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

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.

16. Circumvention. No person shall circumvent any air pollution control device, or allow the emission of air pollutants without the applicable air pollution control device operating properly pursuant to Rule 62-210.650 F.A.C.

SPECIFIC CONDITIONS:

The construction and operation of the Hines Energy Complex (Project) shall be in accordance with all applicable provisions of Chapters 62-210 to 297, F.A.C. and NSPS Subparts GG, Dc, and Kb. The following emission limitations and conditions reflect BACT determinations for the Power Block 1- 485 MW (two combined cycle combustion turbines and auxiliary equipment) of generating capacity for which the need has been determined. BACT determinations for the remaining phases will be made upon review of supplemental applications. In addition to the foregoing, the Project shall comply with the following conditions of certification as indicated.

A. General Requirements

1. The maximum heat input (HHV) to each combustion turbine (CT) at an ambient temperature of 59° F shall neither exceed 1,757 MMBtu/hr while firing natural gas, nor 1,846 MMBtu/hr while firing fuel oil. Heat input may vary depending on ambient conditions and the CT characteristics. Manufacturer's curves or equations for correction to other temperatures shall be provided to DEP for review 90 days after selection of the CT. Subject to approval by the Department for technical validity applying sound engineering principles, the manufacturer's curves shall be used to establish heat input rates over a range of temperatures for the purpose of compliance determination.

2. Each of the two CTs in Power Block 1 may operate continuously, i.e., 8,760 hrs/year.

3. Only natural gas (NG) or low sulfur fuel oil shall be fired in each combustion turbine. Only low sulfur fuel oil shall be fired in the diesel generator. The maximum sulfur content of the low sulfur fuel oil shall not exceed 0.05 percent, by weight. Only natural gas shall be fired in the auxiliary boiler.

4. The maximum heat input to the auxiliary boiler shall not exceed 99 MMBtu/hr. Fuel consumption shall be measured and recorded for the auxiliary boiler.

5. The maximum allowable fuel oil consumption for the two turbines is 13,762,806 gallons per year, which is equivalent to an aggregate of 1,000 hours per year of operation at full load.

6. The permittee shall have the option of installing duct module(s) suitable for possible future installation of an oxidation catalyst and/or SCR equipment on each combined cycle generating unit. In the event that the module(s) are not installed in the Heat Recovery Steam Generator (HRSG), the retrofit costs

associated with not making provisions for such technology (initially) shall not be considered in any future economic evaluation to justify not installing SCR or an oxidation catalyst.

7. Fugitive dust emissions during the construction period shall be minimized by covering or watering dust generation areas.

8. If site construction does not commence on Power Block 1 (485 MW)within 18 months of issuance of this permit, then FPC may request an extension of the 18-month period, provided that such request is received by the Department's Bureau of Air Regulation at least 90 days prior to the expiration date. Such a request shall identify the progress made toward commencement of the construction of the site and the expected time required to start and complete construction of the initial phase. The Department may grant the extension upon a satisfactory showing that the extension is justified. Units to be constructed or modified in later phases of the project will be reviewed under the supplementary review process of the Power Plant Siting Act. If site construction has not commenced within 18 months of issuance of this certification, then FPC shall obtain from DEP a review and, if necessary, a modification of the BACT determination and allowable emissions for the unit(s) on which construction has not commenced [40 CFR 52.21(r)(2)].

B. Emission Limits

1. The maximum allowable emissions from each of the two CTs, when firing natural gas or low sulfur fuel oil, in accordance with the BACT determination and subsequent data from Westinghouse, shall not exceed the following(at 59° F reference temperature for NOx emissions) (except during periods of start up, shutdown, malfunction):

EMISSIONS LIMITATIONS

POLLUTANT	FUEL	BASIS(g)	LB/HR/CT	TPY(b)
NO_X(a)	Gas	12 ppmvd (h)	73(i)	639
	Oil	42 ppmvd (c) (h)	305	153
VOC (d)	Gas	7 ppmvw	10.4	91
	Oil	10 ppmvw	19.0	5.6
CO	Gas	25 ppmvd	77	675
	Oil	30 ppmvd	93	47
PM/PM_{10}	Gas		15.6	79
	Oil(e)		44.8	21
SO_2	Gas(f)		4.7	44
	Oil(f)		94	47
Visible Emissions	Gas	10 percent opacity		
	Oil	20 percent opacity		

a. Pollutant emission rates may vary depending on ambient conditions (compressor inlet temperatures)and the CT characteristics. Manufacturer's curves for the NO_X emission rate correction to other temperatures at different loads shall be provided to DEP for review 90 days

after selection of the CT. Subject to approval by the Department for technical validity applying sound engineering principles, the manufacturer's curves shall be used to establish pollutant emission rates over a range of temperatures for the purpose of compliance determination. Emission limitations in LB/HR/CT of NO_X are blocked 24-hour averages (midnight to midnight) and are calculated as follows:

NO_X emissions shall be determined continuously by a Continuous Emissions Monitoring System (CEMS). A CEMS operated and maintained in accordance with 40 CFR 75 shall be used. Compliance with the NO_X emissions standards in the above table shall be demonstrated with this CEMS system based on a 24-hour block average. Based on CEMS data at the end of each operating day, new 24-hour average emission rates, both actual and allowable (based on compressor inlet temperatures) are calculated from the arithmetic average of all valid hourly emission rates during the previous 24 operating hours. Valid hourly emission rates shall not include periods of startup (including fuel switching), shutdown, or malfunction as defined in Rule 62-210.200 where emissions exceed the NO_X standard. These excess emission periods shall be reported as required in Specific Condition E.2.f. A valid hourly emission rate shall be calculated for each hour in which two NO_X and carbon dioxide (or oxygen) concentrations are obtained at least 15 minutes apart. When monitoring data is not available, substitution for missing data shall be handled as required by Title IV (40 CFR 75) to calculate the 24-hour block average.

b. Annual emission limits (TPY) for natural gas are based on a total of two CTs operating at full load 8,760 hours per year (i.e., NO_X - 73 lbs/hr X 2 CTs X 8,760 hrs/yr X 1 ton/2,000 lbs = 639 TPY). Annual emission limits (TPY) for fuel oil are based on full load operation for a total of 1,000 hours per year for the two CTs (i.e., NO_X - 305 lbs/hr X 1,000 hrs/yr X 1 ton/2,000 lbs = 153 TPY).

c. Fuel oil NO_X emissions are based on full load operation and 15 percent oxygen. For fuel oil firing, NO_X levels of 42 ppmvd @ 15 percent O_2 are based on a fuel bound nitrogen content of 0.015 percent or less. The emission limit for NO_X is adjusted as follows for higher fuel nitrogen contents up to a maximum of 0.030 percent by weight:

FUEL BOUND NITROGEN (% BY WEIGHT)	NO_X LEVELS (PPMVD @ 15% O_2)	NO_X EMISSIONS LB/HR/CT	NO_X EMISSIONS TPY
0.015 or less	42	305	153
0.020	44	320	160
0.025	46	334	167
0.030	48	349	175

using the formula STD = 0.0042 + F where:

STD = allowable NO_X emissions (percent by volume at 15 percent O_2 and on a dry basis).

F = NO_X emission allowance for fuel-bound nitrogen defined by the following table:

FUEL-BOUND NITROGEN (% BY WEIGHT)	F (NO_X % BY VOLUME)
$0 < N < 0.015$	0
$0.015 < N < 0.03$	0.04(N-0.015)

where: N = the nitrogen content of the fuel (% by weight).

NO_X emissions limits are preliminary for the fuel oil specified in Specific Condition No. A.3. FPC shall maintain fuel bound nitrogen content data for the low sulfur fuel oil prior to commercial

operation. Adjustments of the NO_X standard (up and down) shall be calculated and recorded based upon a volume weighted average of the nitrogen content of each bulk fuel oil shipment and the nitrogen content of the existing fuel in the storage tank. The NO_X emission allowance (F) for fuel oil shall not be adjusted between fuel oil shipments. Records for these adjusted standards shall be kept on site for a minimum of 5 years.

d. Exclusive of background concentrations.

e. PM/PM_{10} emission limitations include sulfuric acid mist.

f. SO_2 emissions are based on a maximum of 1 grain of S/100cf of natural gas and 0.05 percent sulfur in the fuel oil.

g. The values are the computational basis for the lb/hr numbers, which are the actual emission limitations. Once a combustion turbine manufacturer has been selected, it may be necessary to modify this basis. If this basis is to be modified, a professional engineer-certified equivalency analysis by the manufacturer must be submitted to the Department. The equivalency analysis will recommend an emissions normalizing basis (i.e., lb/hr, lb/MMBtu, lb/MWh, or ppmvd) and associated emissions appropriate for the specific manufacturer's equipment. If the equivalency analysis demonstrates an impact equal to or less than the current lb/hr limit, the Department shall amend the conditions to reflect the alternate basis. The characteristics and parameters of the CT selected will be reflected in other permit conditions, where appropriate.

h. At 15 percent O_2, not ISO corrected.

i. Control of nitrogen oxides from each CT while firing natural gas shall be accomplished using dry low NO_X burners (DLN) and SCR. Ammonia slip shall not exceed 10 ppm. If the Westinghouse Piloted Ring Combustor(PRC) or a more advanced DLN burner is developed which is able to comply with the emission limits (listed in the above table) and is installed by November 1, 2000 the SCR system may be removed and replaced with these new burners upon 30 days prior notice to DEP. This action would implement the original BACT for NO_X and would not be subject to PSD review. This notice shall include information on the new burners which provides reasonable assurance and PE certification that these DLN burners can consistently meet the BACT emission limits. In this case the new dry low NO_X burners shall be tested in accordance with the initial performance test as described in Section C.1 within 180 days of startup with the new burners.

The following CT emissions, determined by BACT, are tabulated for PSD purposes:

ESTIMATED EMISSIONS

POLLUTANT	METHOD OF CONTROL	Basis(b)
Benzene	Natural Gas	BACT
Inorganic Arsenic	No. 2 Fuel Oil(a)	BACT
Beryllium	No. 2 Fuel Oil (a)	BACT
Mercury	No. 2 Fuel Oil(a)	(c)
Pb	No. 2 Fuel Oil (a)	(c)

a. The No. 2 fuel oil shall have a maximum sulfur content of 0.05 percent.

b. Since these pollutants are inherent constituents in the fuel, the basis for control will be by specifying that only natural gas and No. 2 fuel oil can be fired at the facility.

c. Below PSD significant emission levels.

3. Excess emissions from a turbine resulting from start up, shutdown, malfunction, or load change shall be acceptable providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for a longer duration. The permittee shall provide a general description of the procedures to be followed during periods of start up, shutdown, malfunction, or load change to ensure that the best operational practices to minimize emissions will be adhered to and the duration of any excess emissions will be minimized. The description should be submitted to the Department along with the initial compliance test data. The description may be updated as needed by submitting such update to the Department within thirty (30) days of implementation.

4. Operation of the auxiliary steam boiler shall be limited to a maximum of 1000 hours per year and only during periods of cold CT startup or quick startup out of a short-term shutdown mode, when no other source of steam is available or during periodic testing. The following emission limitations shall apply:

   a. NO_x emissions shall not exceed 0.1 lb/MMBtu for natural gas firing based on vendor-certified stack test data for the model of auxiliary boiler purchased.
   b. Sulfur dioxide emissions shall be limited by firing natural gas.
   c. Visible emissions shall not exceed 10 percent opacity while burning natural gas.

5. Operation of the emergency diesel generator shall be limited to a maximum of 100 hours per year and only during periods of on site emergency power needs (when no other power source is available) or during periodic testing. The following emission limitations shall apply:
   a. The manufacturers design NO_x emission rate shall not exceed 9.82 grams/hp-hr based on vendor-certified stack test data (or equivalent) on the model of generator purchased. This test data shall be provided to the Department with the initial combustion turbine performance test report.
   b. Sulfur dioxide emissions shall be limited by firing only low sulfur fuel oil with maximum sulfur content of 0.05 percent by weight.
   c. Visible emissions shall not exceed 20 percent opacity.

C. Performance Testing

1. An initial (I) performance test shall be performed on each CT for each fuel. Testing of emissions shall be conducted with the source operating at capacity (maximum heat input rate for the tested operating temperature). Capacity is defined as 90 - 100 percent of permitted capacity. If it is impracticable to test at capacity, then sources may be tested at less than capacity; in this case subsequent source operation is limited to 110 percent of the test load until a new test is conducted. Once the unit is so limited, then operation at higher capacities is allowed for no more than fifteen consecutive days for purposes of additional compliance testing to regain the rated capacity in the permit, with prior notification to the Department. Annual (A) compliance tests shall be performed on each CT with the fuel(s) indicated below. Tests shall be conducted using EPA reference methods in accordance with 40 CFR 60, Appendix A, as adopted by reference in Rule 62-297, F.A.C.:
   a. Reference Method 5 or 17 for PM (I, A- only for oil and only if fuel oil is fired more than 400 hours for the CT in the previous federal fiscal year).
   b. Reference Method 9 for VE (I, A- only for oil and only if fuel oil is fired more than 400 hours for the CT in the previous federal fiscal year).

c. Reference Method 10 for CO (I, A- for gas and annually for oil if fuel oil is fired more than 400 hours for the CT in the previous federal fiscal year).
d. Reference Method 20 for NO_X (I- only for compliance with 40 CFR 60.332 and 40 CFR 60.335).
e. Reference Method 18 or Method 25A for VOC (I).
f. ASTM D4294 (or equivalent) for sulfur content of distillate oil (I,A), which can be used for determining SO_2 emissions annually.
g. ASTM D1072-80, D3031-81, D4084-82, or D3246-81 (or equivalent) for sulfur content of natural gas (I).
h. Ammonia (I) by EPA Conditional Test Method CTM-027 or a test method approved by DEP prior to the initial performance test.
i. Other DEP approved methods may be used for compliance testing after prior Departmental approval.

2. The maximum sulfur content of the low sulfur fuel oil shall not exceed 0.05 percent by weight. Compliance shall be demonstrated in accordance with the requirements of 40 CFR 60.334 testing for sulfur content of the fuel oil in the storage tanks on each occasion that fuel is transferred to the storage tanks from any other source. Testing for fuel bound nitrogen content by ASTM D3431 or D4629 or other equivalent ASTM method, and for fuel oil higher heating value, shall also be conducted on the same schedule.

D. Monitoring Requirements

For each combined cycle unit, the permittee shall install, operate, and maintain a continuous emission monitoring system (CEMS) (in accordance with 40 CFR 60, Appendix F or 40 CFR 75) or use other DEP approved alternate methods to monitor nitrogen oxides and, if necessary, a diluent gas (CO_2 or O_2). The Federal Acid Rain Program requirements of 40 CFR 75 shall apply when those requirements become effective for the CTs.

1. Each CEMS shall meet performance specifications of 40 CFR 60, Appendix B or 40 CFR 75.

2. CEMS data shall be recorded and reported in accordance with Chapter 40 CFR 60 Appendix A and Subpart GG and 40 CFR 75. The record shall include periods of start up, shutdown, and malfunction. Compliance with condition B.1. for NO_X shall be determined by CEMS on a mass emission rate basis (LB/HR) using EPA Method 19 and hourly averaged heat inputs (MMBtu/hr).

3. A malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

4. The procedures under 40 CFR 60.13 and 40 CFR 75 shall be followed for installation, evaluation, and operation of all CEMS.

5. For purposes of the reports required under this permit, excess emissions are defined as any calculated average emission rate, as determined pursuant to Condition B.3 herein, which exceeds the applicable emission limits in Condition B.1.

E. Notification, Reporting and Recordkeeping

1. To determine compliance with the natural gas and fuel oil firing heat input limitation, the permittee shall maintain daily records of natural gas and fuel oil consumption for each turbine and the heating value for each fuel. All records shall be maintained for a minimum of two years after the date of each record and shall be made available to representatives of the Department upon request.
2. The project shall comply with all the applicable requirements of Chapter 62, F.A.C., and 40 CFR 60 Subparts A, GG, Dc, and Kb. The requirements shall include:

   a. CFR 60.7(a)(1) - By postmarking or delivering notification of the start of construction no more than 30 days after such date.
   b. CFR 60.7(a)(2) - By postmarking or delivering notification of the anticipated date of the initial startup of each CT and the auxiliary steam boiler not less than 30 days prior to such date.
   c. CFR 60.7(a)(3) - By postmarking or delivering notification of the actual start up of each turbine and the auxiliary steam boiler within 15 days after such date.
   d. CFR 60.7(a)(5) - By postmarking or delivering notification of the date for demonstrating the CEMS performance, no less than 30 days prior to such date.
   e. CFR 60.7(a)(6) - By postmarking or delivering notification of the anticipated date for conducting the opacity observations no less than 30 days prior to such date.
   f. CFR 60.7(b) - By initiating a recordkeeping system to record the occurrence and duration of any start up, shutdown or malfunction of a turbine and the auxiliary steam boiler, of any malfunction of the air pollution control equipment, and the periods when the CEMS is inoperable.
   g. CFR 60.7(c) - By postmarking or delivering a quarterly excess emissions and monitoring system performance report within 30 days after the end of each calendar quarter. This report shall contain the information specified in 40 CFR 60.7(c) and (d). When firing natural gas or fuel oil in the combustion turbines, the NO_X CEMS shall be used in lieu of the water/fuel monitoring system and fuel bound nitrogen (FBN) monitoring required for reporting excess emissions in 40 CFR 60.334(c)(1) (1997 version). The calibration of the water/fuel monitoring device required in 40 CFR 60.335 (c)(2) (1997 version) will be replaced by the 40 CFR 75 certification tests of the NO_X CEMS. Upon request from DEP, the CEMS emission rates for NO_X shall be corrected to ISO conditions to demonstrate compliance with the NO_X standard established in 40 CFR 60.332.
   h. A custom fuel monitoring schedule pursuant to 40 CFR 75 Appendix D for natural gas may be used in lieu of the daily sampling requirements of 40 CFR 60.334 (b)(2) provided the following requirements are met:
      1. The permittee shall apply for an Acid Rain permit within the deadlines specified in 40 CFR 72.30.
      2. The permittee shall submit a monitoring plan, certified by signature of the Designated Representative (DR), that commits to using a primary fuel of pipeline supplied natural gas (sulfur content less than or equal to 20 gr/100 scf pursuant to 40 CFR 75.11(d)(2)).
      3. Each unit shall be monitored for SO_2 emissions using methods consistent with the requirements of 40 CFR 75 and certified by the USEPA.

      This custom fuel monitoring schedule will only be valid when pipeline natural gas is used as a primary fuel. If the primary fuel for these units is changed to a higher sulfur fuel, SO_2 emissions must be accounted for as required pursuant to 40 CFR 75.11(d).
   i. CFR 60.8(a) - By conducting all performance tests within 60 days after achieving the maximum turbine and boiler firing rates, but not more than 180 days after the initial start up of each CT and the auxiliary boiler.

j. CFR 60.8(d) - By postmarking or delivering notification of the date of each performance test required by this permit at least 30 days prior to the test date; and,

k. Rule 62-297.345, F.A.C. - By providing stack sampling facilities where necessary .

All notifications and reports required by this specific condition shall be submitted to the Department's Air Program, within the Southwest District office. Performance test results shall be submitted within 45 days of completion of such test.

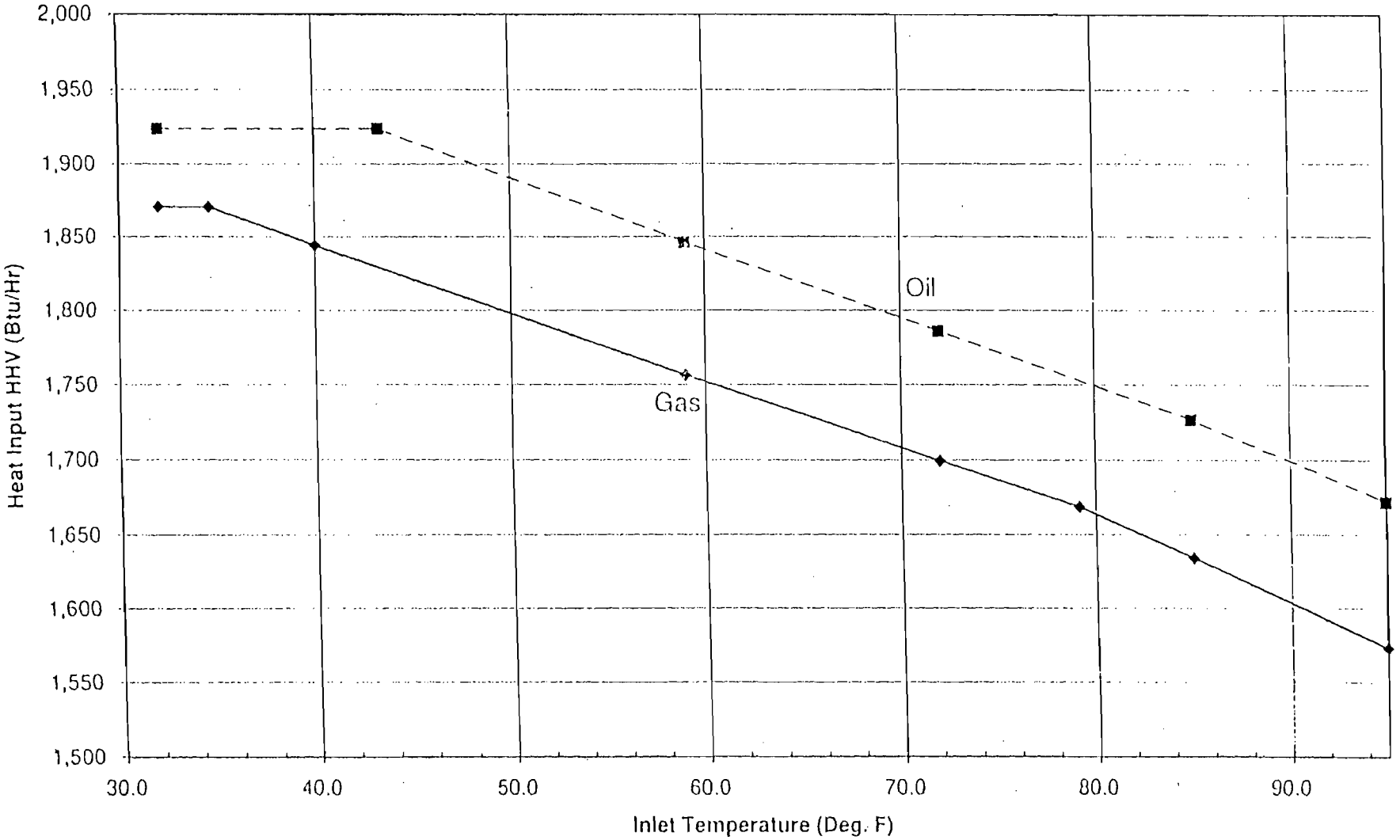
3. The following information shall be submitted to the Department's Bureau of Air Regulation within 90 days after selection of each, respectively:
   a. Description of the final selection of the turbines, the auxiliary steam boiler and diesel generator for installation at the facility. Descriptions shall include the specific make and model numbers, any changes in the proposed method of operation, fuels, emissions or equipment.
   b. Description of the CEMS selected. Description shall include the type of sensors, the manufacturer and model number of the equipment.

4. The following protocols shall be submitted to the Department's Air Program, within the Southwest District office for approval;
   a. CEMS Protocol - Within 60 days after selection of the CEMS, but prior to the initial startup, a CEMS protocol describing the system, its installation, operating and maintenance characteristics and requirements. The protocol shall meet the requirements of 40 CFR 60.13, 40 CFR 60 Appendix B and Appendix F or 40 CFR 75. The Federal Acid Rain Program requirements of 40 CFR 75 shall apply when those requirements become effective within the state.
   b. Performance Test Protocol - At least 30 days prior to conducting the initial performance tests required by this permit, the permittee shall submit to the Department's Air Program, within the Southwest District office, a protocol outlining the procedures to be followed, the test methods and any differences between the reference methods and the test methods proposed to be used to verify compliance with the conditions of this permit. The Department shall approve the testing protocol provided that it meets the requirements of this permit.

F. Modifications

The permittee shall give written notification to the Department when there is any modification to this facility. This notice shall be submitted sufficiently in advance of any critical date involved to allow sufficient time for review, discussion, and revision of plans, if necessary. Such notice shall include, but not be limited to, information describing the precise nature of the change; modifications to any emission control system; production capacity of the facility before and after the change; and the anticipated completion date of the change.

Heat Input (HHV) vs. Inlet Temperature



Florida Power Corporation - Hines Energy Project
NOx Emission Rates

Gas Fuel		Oil Fuel	
Temp, °F	NOx, lb/hr	Temp, °F	NOx, lb/hr
20	78.00	20	316.00
21	78.00	21	316.08
22	78.00	22	316.17
23	78.00	23	316.25
24	78.00	24	316.33
25	78.00	25	316.42
26	78.00	26	316.50
27	78.00	27	316.58
28	78.00	28	316.67
29	78.00	29	316.75
30	78.00	30	316.83
31	78.00	31	316.92
32	78.00	32	317.00
33	78.00	33	317.00
34	78.00	34	317.00
35	78.00	35	317.00
36	77.80	36	317.00
37	77.60	37	317.00
38	77.40	38	317.00
39	77.20	39	317.00
40	77.00	40	317.00
41	76.79	41	317.00
42	76.58	42	317.00
43	76.37	43	317.00
44	76.16	44	316.25
45	75.95	45	315.50
46	75.74	46	314.75
47	75.53	47	314.00
48	75.32	48	313.25
49	75.11	49	312.50
50	74.89	50	311.75
51	74.68	51	311.00
52	74.47	52	310.25
53	74.26	53	309.50
54	74.05	54	308.75
55	73.84	55	308.00
56	73.63	56	307.25
57	73.42	57	306.50
58	73.21	58	305.75
59	73.00	59	305.00
60	72.85	60	304.46
61	72.69	61	303.92
62	72.54	62	303.38
63	72.38	63	302.85
64	72.23	64	302.31
65	72.08	65	301.77
66	71.92	66	301.23
67	71.77	67	300.69

68	71.62	68	300.15
69	71.46	69	299.62
70	71.31	70	299.08
71	71.15	71	298.54
72	71.00	72	298.00
73	70.86	73	297.23
74	70.71	74	296.46
75	70.57	75	295.69
76	70.43	76	294.92
77	70.29	77	294.15
78	70.14	78	293.38
79	70.00	79	292.62
80	69.83	80	291.85
81	69.67	81	291.08
82	69.50	82	290.31
83	69.33	83	289.54
84	69.17	84	288.77
85	69.00	85	288.00
86	68.80	86	287.30
87	68.60	87	286.60
88	68.40	88	285.90
89	68.20	89	285.20
90	68.00	90	284.50
91	67.80	91	283.80
92	67.60	92	283.10
93	67.40	93	282.40
94	67.20	94	281.70
95	67.00	95	281.00

ATTACHMENT HEC-EU1-L5

COMPLIANCE TEST REPORT

Florida Power
CORPORATION

bcc: D. W. Sorrick
D. G. Dingle
J. W. Agee
J. M. Kennedy
R. J. McClintock
B. R. Melton

File: Hines/Air/Corresp.
k:\user\sosbourn\1999\hectest2.doc
927-RPP902-007

May 14, 1999

Mr. William Proses
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Dr.
Tampa, Florida 33619-8318

Dear Mr. Proses:

Re: Initial Compliance Testing
Hines Energy Complex

Florida Power Corporation (FPC) has completed compliance testing at the above-referenced facility. Testing was conducted on combustion turbine units 1A and 1B, while firing fuel oil, during the periods of April 1 through 2 and April 11 through 12, 1999. In addition, testing was completed on the auxiliary boiler on March 29, 1999. Test results indicate that compliance was achieved for all applicable requirements. This letter serves to transmit two copies of each test report.

If you should have any questions concerning the enclosed test reports, please do not hesitate to contact me at (727) 826-4258.

Sincerely,

Scott H. Osbourn
Senior Environmental Engineer

cc: Martin Costello, DEP
Leonard Brenner, Cubix Corporation

INITIAL COMPLIANCE TEST REPORT
for
NATURAL GAS FUELED STACK EMISSIONS

on
POWER BLOCK 1

consisting of
UNITS 1A AND 1B, TWO WESTINGHOUSE 501F COMBINED CYCLE COMBUSTION TURBINES

at the
HINES ENERGY COMPLEX

in
POLK COUNTY, FLORIDA

Prepared for

FLORIDA POWER CORPORATION

February 1999

Cubix Job No. 4911

Prepared by

Cubix Corporation
http://www.cubixcorp.com

CORPORATE HEADQUARTERS
9225 US Hwy. 183 South, Austin, TX 78747
(512) 243-0202 TEL (512) 243-0222 FAX

INTRODUCTION

Emission testing was conducted on Power Block 1, which consists of two combined cycle combustion turbines manufactured by Siemens Westinghouse Power Corporation. These units, used to generate power, were recently installed at the Hines Energy Complex located near Fort Meade in Polk County, Florida. Florida Power Corporation (FPC) owns and operates this facility. This report documents the testing of each combustion turbine while fueled with natural gas. A separate report will be provided for the testing of the units while fueled with No. 2 fuel oil. The testing was conducted by Cubix Corporation, Southeast Regional Office on December 29 and 31, 1998, and on January 1 to 2, 1999.

The purpose of this testing was to determine the status of initial compliance for combustion turbine emissions with the permit limits set forth by the Florida Department of Environmental Protection (FDEP), Permit Numbers PSD-FL-195A and PA-92-33. Additionally, the emissions were measured to determine compliance with the Environmental Protection Agency (EPA) Code of Federal Regulations, Title 40, Part 60, (40 CFR 60) Subpart GG "Standards of Performance for Stationary Gas Turbines". The tests followed the procedures set forth in 40 CFR 60, Appendix A, Methods 1, 2, 3a, 4, 5, 9, 10, 19, 20, 25a, and 26a (modified).

Each turbine's exhaust was analyzed for oxides of nitrogen (NO_X), carbon monoxide (CO), total hydrocarbon compounds (THC), oxygen (O_2), and carbon dioxide (CO_2) using continuous instrumental monitors. Particulate matter (PM) and ammonia (NH_3) samples were collected iso-kinetically using a combined hot/cold manual sampling train. Ammonia samples were analyzed on-site using the Nessler procedure and also by Triangle Laboratories, Inc. of Durham, North Carolina using ion chromatographic procedures. Visible emissions (VE) were determined by a certified observer. Analysis of the natural gas fuel was provided by Florida Gas Transmission Company's laboratory in Perry, Florida. Table 1 provides background data pertinent to these tests.

This test report has been reviewed and approved for submittal to the FDEP by the following representatives:

Leonard

Cubix Corporation

Florida Power Corporation

SUMMARY OF RESULTS

Florida Power Corporation (FPC) owns and operates the Hines Energy Complex in Polk County, Florida. At this facility two Westinghouse combined cycle combustion turbines, each equipped with an unfired heat recovery steam generator (HRSG), are used to generate electrical power. The combustion turbines are designated as Unit 1A and Unit 1B by FPC. Stack emissions from these units, while fueled with natural gas, are the subject of this report. Emissions from these units, while fueled with fuel oil, will be reported separately.

The first step in the test matrix for each unit consisted of conducting an initial sampling traverse of the combustion turbine/heat recovery steam generator (CT/HRSG) exhaust stack. The purpose of this sampling traverse was to check for changes in O_2 concentration (stratification) within the exhaust stack. Each turbine was set to the lowest load representative of normal operation, approximately 90 megawatts (MW), while operating under dry, low NO_X combustion and with Selective Catalytic Reduction (SCR) operating. O_2 concentrations were measured at 48 traverse points within the CT/HRSG stack to determine the eight points of lowest O_2 concentration. This initial traverse was conducted on each CT/HRSG stack. No significant stratification was found in either exhaust stack; therefore, all subsequent tests were conducted at the eight most convenient traverse points on each unit.

Following the O_2-traverse, Cubix conducted three test runs at each of four load conditions across the operational range of the combustion turbine (~90 MW, ~110 MW, ~135 MW, and full load at ~165 MW). Each reduced load test run was 18 minutes and 40 seconds in duration (8 sample points, 140 seconds per point). The first reduced load test was conducted concurrently with the initial O_2-traverse. Full load is defined as 90 to 100% of the maximum permitted capacity, expressed as heat input, determined from the Westinghouse performance curve of heat input versus turbine inlet temperature for the unit. NO_X, O_2, and CO_2 were continuously monitored at all load conditions. Additional full load measurements included CO and THC using continuous instrumental monitors and iso-kinetic sampling for collection of PM and NH_3 samples. The full load test runs were 1 hour in duration for all constituents except PM and NH_3 which were performed for 2 to 3 hours to collect an appreciable amount of sample. A one-hour VE test was conducted simultaneously with one of the full load test runs. This test matrix was performed on both CT units.

Table 2, the executive summary, signifies the performance for each unit during the full load testing. These performance results are an average of the three full load test runs for each unit. These emissions are compared to the permit limits set forth in FDEP Permit Nos. PSD-FL-195A and PA-92-33.

TABLE 2
Executive Summary

Parameter	Unit 1A Westinghouse 501F Turbine	Unit 1B Westinghouse 501F Turbine	NSPS/FDEP Permit Limits
Percent Load (of capacity as heat input)	100.0%	99.8%	90 to 100%
NO_x (lbs/hr at 67°F inlet temperature)	63.5	-	71.77
NO_x (lbs/hr at 61°F inlet temperature)	-	67.8	72.69
VOC (lbs/hr, from THC measurements)	0.33	0.73	10.4
CO (lbs/hr)	2.11	2.56	77
PM/PM_{10} (lbs/hr)	2.54	2.97	15.6
SO_2 (lbs/hr)	1.63	1.65	4.7
Visible Emissions (% opacity)	0%	0%	10%
NH_3 (ppmv, dry basis by Nessler analysis)	3.84	6.15	10
NH_3 (ppmv, dry basis by Ion Chromatography)	3.57	4.19	10

Tables 3 and 4 represent the Unit 1A test results for full load and reduced load testing, respectively. These tabular summaries contain all pertinent operational parameters, ambient conditions, measured emissions, corrected concentrations, and calculated emission rates. NO_X emissions are reported in units of parts per million by volume (ppmv) on a dry basis, ppmv corrected to 15% excess O_2, and ppmv corrected to 15% excess O_2 and ISO conditions. The EPA defines ISO conditions as ambient atmospheric conditions of 59 degrees Fahrenheit (°F) temperature, 101.3 kilopascals (kPa) pressure, and 60% relative humidity. CO and NH_3 concentrations were determined on ppmv, dry basis. Volatile organic compound (VOC) concentrations were determined from THC measurements and were determined on a ppmv, wet basis as methane. Concentrations of PM were determined in units of grams per dry standard cubic feet (grams PM/DSCF). Mass emission rates for NO_X, CO, VOC, PM, NH_3, and SO_2 are reported in terms of pounds per hour (lbs/hr). As stated in the test matrix above, only NO_X concentrations and emissions were applicable for the reduced load tests.

Tables 5 and 6 represent the Unit 1B test results for full load and reduced load testing, respectively. These tabular summaries contain all pertinent operational parameters, ambient conditions, measured emissions, corrected

concentrations, and calculated emission rates. NO_X emissions are reported in units of ppmv on a dry basis, ppmv at 15% excess O_2, and ppmv at 15% excess O_2 and ISO conditions. CO and NH_3 concentrations were determined on ppmv, dry basis. VOC concentrations were determined from THC measurements and were determined on a ppmv, wet basis as methane. Concentrations of PM were determined in units of grams PM/DSCF. Mass emission rates for NO_X, CO, VOC, PM, NH_3, and SO_2 are reported in terms of lbs/hr.

Volumetric flow and mass emission rates were determined by stoichiometric calculation (EPA Method 19) based on measurements of diluent gas (O_2 or CO_2) concentrations, "F-factors" determined from fuel composition, and unit fuel flow rates. Examples of iso-kinetic calculations, emission rate calculations, and other calculations necessary for the presentation of the results of this section are contained in Appendix B.

The fuel sulfur content analyses, concentration in ppmv, is contained in Appendix C of this report. The fuel was analyzed on-line for total fuel sulfur content by Florida Gas Transmission's Perry Laboratory. The SO_2 emission rates, reported in lbs/hr, were calculated from the results of these analyses and the measured fuel flow rates recorded during the tests.

Visible emission observations of each CT/HRSG exhaust stack per EPA Method 9 were performed by an observer certified by Eastern Technical Associates of Raleigh, North Carolina. A one-hour visible emissions test run was conducted on each unit. VE were an average of 0% opacity in the highest six-minute average for each test and no VE greater than 0% opacity was observed during the tests.

Appendix A contains all field data sheets used during these tests as well as the particulate matter analysis worksheets and the Nessler procedure ammonia analysis worksheets. Appendix B contains examples of all calculations necessary for the reduction of the data presented in this report. Appendix C contains the fuel analysis and Cubix's fuel calculation worksheet. Quality Assurance Activities are documented in Appendix D. Certificates of calibrations are contained in Appendix E of this report. Copies of the reference method strip chart records obtained during these tests are available in Appendix F of this report. Appendix G contains the "Visible Emissions Observation Forms" and the observer certifications. Appendix H contains the operational data provided by FPC during the test runs. Ion chromatography results from the ammonia analysis are presented in Appendix I. The FDEP facility permits and FDEP correspondence records are presented in Appendix J for reference purposes.

TABLE 3: Summary of Results
Full Load Testing
Unit 1A

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, RPO, JAR, JFR
Source: Unit 1A, a Westinghouse 501F Power Turbine

Test Number	Gas-AC-2	Gas-AC-3	Gas-AC-4		
Date	1/1/99	1/1/99	1/1/99		
Start Time	9:05	13:21	14:58		FDEP Permit Limits
Stop Time	10:05	14:21	15:59		
Turbine/Compressor Operation				*Averages*	
Generator Output (MW, CT generated power only)	171.4	164.0	163.7	*166.4*	
Heat Input (MMBtu/hr, higher heating value, HHV)	1,744	1,720	1,706	*1,723*	
Turbine Capacity (Mfg.'s Curve, heat input vs. inlet temp)	1,760	1,704	1,704	*1,723*	
Percent Load (% of maximum heat input at inlet temp)	99.1%	100.9%	100.1%	*100.0%*	
Engine Compressor Discharge Pressure (psia)	218.6	211.9	211.9	*214.1*	
Turbine Air Inlet Temperature (°F)	58.4	71.0	71.0	*66.8*	
Compressor Discharge Temperature Sel. (°F)	219	766	766	*584*	
Mean Turbine Exhaust Temperature (°F)	1130	1144	1147	*1140*	
SCR Ammonia Injection Rate (lbs/hr)	193.2	197.5	193.6	*194.8*	
Pre-SCR Temperature (SCR inlet temperature, °F)	613	613	613	*613*	
Post-SCR Temperature (SCR outlet temperature, °F)	646	646	646	*646*	
Turbine Fuel Data (Natural Gas, FGT)					
Fuel Heating Value (Btu/lb, HHV)	23122	23122	23122	*23122*	
Fuel Specific Gravity	0.5982	0.5982	0.5982	*0.5982*	
Sulfur in Fuel (grains/100 SCF of fuel gas)	0.375	0.375	0.375	*0.375*	1
O_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8646	8646	8646	*8646*	
CO_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1034	1034	1034	*1034*	
Fuel Flow (KPPH, natural gas)	75.43	74.38	73.80	*74.54*	
Heat Input (MMBtu/hr, Higher Heat Value)	1744.1	1719.8	1706.4	*1723.4*	
Heat Input (MMBtu/hr, Lower Heat Value)	1569.7	1547.8	1535.8	*1551.1*	
Ambient Conditions					
Atmospheric Pressure ("Hg)	29.83	29.76	29.73	*29.77*	
Temperature (°F): Dry bulb	70.0	74.0	71.8	*71.9*	
(°F): Wet bulb	63.0	63.0	61.9	*62.6*	
Humidity (lbs moisture/lb of air)	0.0105	0.0096	0.0094	*0.0098*	
Measured Emissions					
NO_X (ppmv, dry basis)	11.99	12.14	12.14	*12.09*	
NO_X (ppmv, dry @ 15% O_2)	9.9	10.0	10.3	*10.1*	
NO_X (ppmv @ 15% O_2, ISO Day)	10.8	10.3	10.6	*10.6*	
CO (ppmv, dry basis)	0.62	0.63	0.73	*0.66*	
THC (ppmv, wet basis)	0.38	0.02	0.10	*0.17*	
PM (grams PM/DSCF exhaust gas)	2.80E-05	3.53E-05	1.53E-05	*2.62E-05*	
NH_3 (ppmv, dry basis from ion chromatography per FDEP)	2.42	2.93	5.37	*3.57*	10
NH_3 (ppmv, dry basis from on-site Nessler analysis)	2.60	3.09	5.82	*3.84*	10
Visible Emissions (% opacity)	0			0	10
H_2O (% volume, from Method 5 sample train)	8.48	8.24	8.35	8.36	
O_2 (% volume, dry basis)	13.76	13.77	13.94	*13.82*	
CO_2 (% volume, dry basis)	4.16	4.21	4.08	*4.15*	
F_o (fuel factor, range = 1.600-1.836 for NG)	1.72	1.69	1.71	*1.71*	
Stack Volumetric Flow Rates					
via O_2 "F_d-factor" (SCFH, dry basis)	4.41E+07	4.36E+07	4.43E+07	*4.40E+07*	
via CO_2 "F_c-factor" (SCFH, dry basis)	4.34E+07	4.22E+07	4.32E+07	*4.29E+07*	
Calculated Emission Rates (via M-19 O_2 "F-factor")					
NO_X (lbs/hr)	**63.2**	**63.2**	**64.2**	*63.5*	71.77†
CO (lbs/hr)	**1.99**	**2.00**	**2.35**	*2.11*	77
THC (lbs/hr)	**0.76**	**0.04**	**0.20**	*0.33*	10.4
PM (lbs/hr)	**2.73**	**3.39**	**1.49**	*2.54*	15.6
SO_2 (lbs/hr, based on fuel flow and fuel sulfur)	**1.64**	**1.62**	**1.61**	*1.63*	4.7

† Permit Limit based upon actual average turbine air inlet temperature during testing

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, JFR, RPO, JAR
Source: Unit 1A, a Westinghouse 501F Power Turbine

TABLE 4: Summary of Results
Reduced Load Testing
Unit 1A

Test Number	Gas-AC-1	Gas-AC-11	Gas-AC-12	Gas-AC-8	Gas-AC-9	Gas-AC-10	Gas-AC-5	Gas-AC-6	Gas-AC-7
Date	12/31/98	1/2/99	1/2/99	1/1/99	1/2/99	1/2/99	1/1/99	1/1/99	1/1/99
Start Time	18:25	13:57	14:50	20:31	12:43	13:13	18:11	18:41	19:17
Stop Time	21:07	14:17	15:09	20:50	13:02	13:32	18:30	19:01	19:37
Turbine/Compressor Operation	**Low Load, ~86 MW**			**Mid Load-1, ~108 MW**			**Mid Load-2, ~135 MW**		
Generator Output	85.0	80.8	90.9	110.9	107.3	106.9	135.4	135.0	135.1
Heat Input (higher heating value, HHV)	1033.6	1035.9	1123.3	1216.9	1242.8	1242.8	1416.7	1404.9	1404.9
Turbine Capacity (Mfg.'s Curve, heat input vs. inlet temp)	1,742	1,676	1,666	1,745	1,690	1,690	1,729	1,736	1,745
Percent Load (% of maximum heat input at inlet temp)	59.3	61.8	67.4	69.7	73.5	73.5	81.9	80.9	80.5
Engine Compressor Discharge Pressure (psia)	148.0	143.5	148.3	164.9	161.1	161.1	190.0	189.0	189.0
Turbine Air Inlet Temperature (°F)	62.6	77.0	79.0	62.0	74.0	74.0	65.5	64.0	62.0
Compressor Discharge Temperature Sel. (°F)	652	673	679	681	694	694	718	718	713
Mean Turbine Exhaust Temperature (°F)	1037	1058	1096	1086	1101	1101	1073	1070	1070
SCR Ammonia Injection Rate (lbs/hr)	104.9	91.0	96.0	105.0	114.5	116.0	125.0	67.5	60.5
Pre-SCR Temperature (SCR inlet temperature, °F)	604	575	582	572	592	592	583	583	583
Post-SCR Temperature (SCR outlet temperature, °F)	622	605	612	610	617	617	618	615	615
Turbine Fuel Data (Residue Gas)									
Fuel Heating Value (Btu/lb, HHV)	23122	23122	23122	23122	23122	23122	23122	23122	23122
Fuel Specific Gravity	0.5982	0.5982	0.5982	0.5982	0.5982	0.5982	0.5982	0.5982	0.5982
Sulfur in Fuel (% weight, from ASTM D3246 analysis)	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060
O_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8646	8646	8646	8646	8646	8646	8646	8646	8646
CO_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1034	1034	1034	1034	1034	1034	1034	1034	1034
Fuel Flow (KPPH)	44.70	44.80	48.58	52.63	53.75	53.75	61.27	60.76	60.76
Heat Input (MMBtu/hr, Higher Heat Value)	1033.6	1035.9	1123.3	1216.9	1242.8	1242.8	1416.7	1404.9	1404.9
Heat Input (MMBtu/hr, Lower Heat Value)	930.2	932.3	1010.9	1095.2	1118.5	1118.5	1275.0	1264.4	1264.4
Ambient Conditions									
Atmospheric Pressure ("Hg)	29.80	29.56	29.55	29.75	29.60	29.59	29.74	29.75	29.75
Temperature (°F): Dry bulb	62.0	80.5	81.2	64.0	78.0	79.8	68.6	65.2	64.9
(°F): Wet bulb	58.0	71.6	72.0	59.8	71.4	71.4	61.7	59.9	60.0
Humidity (lbs moisture/lb of air)	0.0092	0.0144	0.0146	0.0099	0.0148	0.0144	0.0100	0.0097	0.0098
Measured Emissions									
NO_X (ppmv, dry basis)	8.86	10.59	12.50	16.37	12.07	12.13	6.07	9.04	12.74
O_2 (% volume, dry basis)	15.11	15.01	14.62	14.40	14.43	14.39	14.47	14.43	14.39
CO_2 (% volume, dry basis)	3.35	3.32	3.48	3.71	3.75	3.75	3.71	3.66	3.64
F_o (fuel factor, range = 1.600-1.836 for NG)	1.73	1.77	1.80	1.75	1.73	1.74	1.73	1.77	1.79
Stack Volumetric Flow Rates									
via O_2 "F_o-factor" (SCFH, dry basis)	3.22E+07	3.18E+07	3.23E+07	3.38E+07	3.47E+07	3.45E+07	3.98E+07	3.92E+07	3.90E+07
via CO_2 "F_c-factor" (SCFH, dry basis)	3.19E+07	3.23E+07	3.34E+07	3.39E+07	3.43E+07	3.43E+07	3.95E+07	3.97E+07	3.99E+07
Calculated Emission Rates (via M-19 O_2 "F-factor")									
NO_X (ppmv, dry @ 15% O_2)	9.0	10.6	11.7	14.9	11.0	11.0	5.6	8.2	11.5
NO_X (ppmv @ 15% O_2, ISO Day)	9.5	11.8	13.0	15.8	12.4	12.3	5.9	8.7	12.3
NO_X (lbs/hr)	**34.1**	**40.8**	**49.8**	**66.3**	**50.0**	**50.0**	**28.9**	**42.9**	**60.7**

TABLE 5: Summary of Results
Full Load Testing
Unit 1B

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, RPO, JAR, JFR
Source: Unit 1B, a Westinghouse 501F Power Turbine

Test Number	Gas-BC-10	Gas-BC-11	Gas-BC-12		
Date	12/29/98	12/31/98	12/31/98		
Start Time	18:00	7:28	14:05		FDEP Permit Limits
Stop Time	21:45	8:34	15:11		
Turbine/Compressor Operation				*Averages*	
Generator Output (MW, CT generated power only)	169.3	180.34	168.60	*172.8*	
Heat Input (higher heating value, HHV)	1,728	1,771	1,736	*1,745*	
Turbine Capacity (Mfg.'s Curve, heat input vs. inlet temp)	1,728	1,802	1,715	*1,748*	
Percent Load (% of maximum heat input at inlet temp)	100.0%	98.3%	101.2%	*99.8%*	
Engine Compressor Discharge Pressure (psia)	213.7	225.05	215.15	*218.0*	
Turbine Air Inlet Temperature (°F)	65.7	49.0	68.7	*61.1*	
Compressor Discharge Temperature Sel. (°F)	762	743	767	*758*	
Mean Turbine Exhaust Temperature (°F)	1141	1123	1138	*1134*	
SCR Ammonia Injection Rate (lbs/hr)	231.3	231.03	216.12	*226.16*	
Pre-SCR Temperature (SCR inlet temperature, °F)	634	615	617	*622*	
Post-SCR Temperature (SCR outlet temperature, °F)	658	646	646	*650*	
Turbine Fuel Data (Natural Gas, FGT)					
Fuel Heating Value (Btu/lb, HHV)	23122	23122	23122	*23122*	
Fuel Specific Gravity	0.5982	0.5982	0.5982	*0.5982*	
Sulfur in Fuel (grains/100 SCF of fuel gas)	0.375	0.375	0.375	*0.375*	1
O_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8646	8646	8646	*8646*	
CO_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1034	1034	1034	*1034*	
Fuel Flow (KPPH, natural gas)	74.72	76.60	75.08	*75.47*	
Heat Input (MMBtu/hr, Higher Heat Value)	1727.7	1771.1	1736.0	*1744.9*	
Heat Input (MMBtu/hr, Lower Heat Value)	1554.9	1594.0	1562.4	*1570.4*	
Ambient Conditions					
Atmospheric Pressure ("Hg)	29.50	29.85	29.81	*29.72*	
Temperature (°F): Dry bulb	67.0	57.0	72.5	*65.5*	
(°F): Wet bulb	66.8	52.0	62.0	*60.3*	
Humidity (lbs moisture/lb of air)	0.0140	0.0070	0.0093	*0.0101*	
Measured Emissions					
NO_X (ppmv, dry basis)	12.47	12.88	13.18	*12.84*	
NO_X (ppmv, dry @ 15% O_2)	9.9	10.7	10.8	*10.5*	
NO_X (ppmv @ 15% O_2, ISO Day)	11.3	11.1	11.1	*11.2*	
CO (ppmv, dry basis)	0.67	0.84	0.87	*0.79*	
THC (ppmv, wet basis)	0.22	0.30	0.57	*0.36*	
PM (grams PM/DSCF exhaust gas)	1.82E-05	5.14E-05	2.00E-05	*2.99E-05*	
NH_3 (ppmv, dry basis from ion chromatography per FDEP)	4.38	3.71	4.48	*4.19*	10
NH_3 (ppmv, dry basis from on-site Nessler analysis)	5.82	6.75	5.87	*6.15*	10
Visible Emissions (% opacity)			0	0	10
H_2O (% volume, from Method 5 sample train)	9.14	8.05	7.97	8.38	
O_2 (% volume, dry basis)	13.50	13.78	13.69	*13.66*	
CO_2 (% volume, dry basis)	4.32	3.93	4.10	*4.12*	
F_o (fuel factor, range = 1.600-1.836 for NG)	1.71	1.81	1.76	*1.76*	
Stack Volumetric Flow Rates					
via O_2 "F_d-factor" (SCFH, dry basis)	4.22E+07	4.50E+07	4.35E+07	*4.35E+07*	
via CO_2 "F_c-factor" (SCFH, dry basis)	4.14E+07	4.66E+07	4.38E+07	*4.39E+07*	
Calculated Emission Rates (via M-19 O_2 "F-factor")					
NO_X (lbs/hr)	**62.8**	**71.7**	**68.9**	*67.8*	72.69†
CO (lbs/hr)	**2.06**	**2.85**	**2.77**	*2.56*	77
THC (lbs/hr)	**0.43**	**0.63**	**1.13**	*0.73*	10.4
PM (lbs/hr)	**1.69**	**5.28**	**1.93**	*2.97*	15.6
SO_2 (lbs/hr, based on fuel flow and fuel sulfur)	**1.63**	**1.67**	**1.64**	*1.65*	4.7

† Permit Limit based upon actual average turbine air inlet temperature during testing

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, JFR, RPO, JAR
Source: Unit 1B, a Westinghouse 501F Power Turbine

TABLE 6: Summary of Results
Reduced Load Testing
Unit 1B

Test Number	Gas-BC-1	Gas-BC-2	Gas-BC-3	Gas-BC-4	Gas-BC-5	Gas-BC-6	Gas-BC-7	Gas-BC-8	Gas-BC-9
Date	12/29/98	12.29/98	12/29/98	12/29/98	12/29/98	12/29/98	12/29/98	12/29/98	12/29/98
Start Time	7:14	9:55	10:34	11:20	11:54	12:27	13:48	14:21	14:56
Stop Time	9:43	10:16	10:55	11:39	12:13	12:46	14:08	14:41	15:15
Turbine/Compressor Operation	**Low Load, ~90 MW**			**Mid Load-1, ~110 MW**			**Mid Load-2, 130 MW**		
Generator Output	89.99	89.96	90.14	110.11	109.94	109.94	130.02	130.14	129.87
Heat Input (higher heating value, HHV)	1067.8	1073.6	1073.6	1234.7	1245.1	1250.9	1408.4	1408.4	1408.4
Turbine Capacity (Mfg.'s Curve, heat input vs. inlet temp)	1,750	1,739	1,724	1,703	1,688	1,674	1,658	1,666	1,664
Percent Load (% of maximum heat input at inlet temp)	61.0	61.7	62.3	72.5	73.8	74.7	84.9	84.6	84.6
Engine Compressor Discharge Pressure (psia)	148.91	148.73	148.20	163.08	162.85	162.69	185.91	185.56	185.28
Turbine Air Inlet Temperature (°F)	60.91	63.31	66.70	71.40	74.53	77.37	80.44	79.00	79.25
Compressor Discharge Temperature Sel. (°F)	655	657	662	690	694	699	738	736	737
Mean Turbine Exhaust Temperature (°F)	1066	1070	1075	1089	1095	1101	1068	1069	1071
SCR Ammonia Injection Rate (lbs/hr)	83.79	86.26	105.28	88.73	125.46	114.16	74.27	62.56	77.62
Pre-SCR Temperature (SCR inlet temperature, °F)	573	578	579	584	565	574	599	600	600
Post-SCR Temperature (SCR outlet temperature, °F)	605	605	608	614	601	607	622	624	625
Turbine Fuel Data (Residue Gas)									
Fuel Heating Value (Btu/lb, HHV)	23122	23122	23122	23122	23122	23122	23122	23122	23122
Fuel Specific Gravity	0.5982	0.5982	0.5982	0.5982	0.5982	0.5982	0.5982	0.5982	0.5982
Sulfur in Fuel (% weight, from ASTM D3246 analysis)	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060	0.00060
O_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8646	8646	8646	8646	8646	8646	8646	8646	8646
CO_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1034	1034	1034	1034	1034	1034	1034	1034	1034
Fuel Flow (KPPH)	46.18	46.43	46.43	53.40	53.85	54.10	60.91	60.91	60.91
Heat Input (MMBtu/hr, Higher Heat Value)	1067.8	1073.6	1073.6	1234.7	1245.1	1250.9	1408.4	1408.4	1408.4
Heat Input (MMBtu/hr, Lower Heat Value)	961.0	966.2	966.2	1111.2	1120.6	1125.8	1267.5	1267.5	1267.5
Ambient Conditions									
Atmospheric Pressure ("Hg)	29.60	29.60	29.59	29.58	29.56	29.53	29.51	29.50	29.48
Temperature (°F): Dry bulb	63.6	68.0	69.0	72.2	75.1	80.0	79.8	79.2	77.3
(°F): Wet bulb	63.6	67.0	68.0	69.2	70.8	73.3	75.5	76.1	76.4
Humidity (lbs moisture/lb of air)	0.0125	0.0138	0.0143	0.0145	0.0151	0.0159	0.0178	0.0185	0.0192
Measured Emissions									
NO_x (ppmv, dry basis)	14.19	15.73	10.67	15.58	16.82	13.60	7.67	11.17	10.63
O_2 (% volume, dry basis)	14.85	14.80	14.79	14.43	14.31	14.34	14.45	14.38	14.39
CO_2 (% volume, dry basis)	3.46	3.50	3.58	3.71	3.75	3.73	3.71	3.75	3.83
F_u (fuel factor, range = 1.600-1.836 for NG)	1.75	1.74	1.71	1.74	1.76	1.76	1.74	1.74	1.70
Stack Volumetric Flow Rates									
via O_2 "F_d-factor" (SCFH, dry basis)	3.19E+07	3.18E+07	3.18E+07	3.45E+07	3.41E+07	3.45E+07	3.95E+07	3.90E+07	3.91E+07
via CO_2 "F_c-factor" (SCFH, dry basis)	3.19E+07	3.17E+07	3.10E+07	3.44E+07	3.43E+07	3.47E+07	3.93E+07	3.88E+07	3.80E+07
Calculated Emission Rates (via M-19 O_2 "F-factor")									
NO_x (ppmv, dry @ 15% O_2)	13.8	15.2	10.3	14.2	15.1	12.2	7.0	10.1	9.6
NO_x (ppmv @ 15% O_2, ISO Day)	15.5	17.4	11.8	16.1	17.1	14.0	8.3	12.1	11.7
NO_x (lbs/hr)	**54.1**	**59.8**	**40.5**	**64.2**	**69.0**	**56.3**	**36.2**	**52.1**	**49.6**

STACK EMISSIONS
INITIAL COMPLIANCE TEST REPORT

on a

99 MMBTU/HR AUXILIARY BOILER

at the

HINES ENERGY COMPLEX

in

POLK COUNTY, FLORIDA

Prepared for

FLORIDA POWER CORPORATION

May 1999

Cubix Job No. 4911

Prepared by

Cubix Corporation
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INTRODUCTION

Stack emission testing was conducted on a 99 MMBtu/hr natural gas fired Auxiliary Boiler located at the Hines Energy Complex near Fort Meade in Polk County, Florida. Florida Power Corporation (FPC) owns and operates this facility. This report documents the testing of the auxiliary boiler while fired on natural gas. Oxides of nitrogen (NO_X), oxygen (O_2), carbon dioxide (CO_2), and visible emissions (VE) were measured in the exhaust of the auxiliary boiler. The tests were conducted by Cubix Corporation, Southeast Regional Office, on March 29, 1999.

The purpose of this testing was to determine the status of initial compliance for the auxiliary boiler's emissions with the permit limits set forth by the Florida Department of Environmental Protection (FDEP), Permit Numbers PSD-FL-195A and PA-92-33. Additionally, the emissions were measured to determine compliance with the Environmental Protection Agency (EPA) Code of Federal Regulations, Title 40, Part 60, (40 CFR 60) Subpart Dc "Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units". The tests followed the procedures set forth in 40 CFR 60, Appendix A, Methods 3a, 7e, 9, and 19. Three one-hour test runs were conducted on the unit documenting operational data, emission concentrations, and mass emission rates.

This report has been reviewed and is approved for submittal by the following representatives:

Cubix Corporation

Florida Power Corporation

SUMMARY OF RESULTS

Florida Power Corporation owns and operates the Hines Energy Complex located in Polk County, Florida. At this facility a natural gas fired auxiliary boiler is used to provide supplemental steam to a heat recovery steam generation system used in power generation. Stack emissions from this unit are the subject of this report.

The test matrix consisted of three one-hour (or greater) test runs on the auxiliary boiler. The unit was fueled by natural gas during these tests. The average unit operation was 11.4% of the 99 MMBtu/hr permit limit. This is the normal maximum achievable operation for this unit in the current plant configuration. Continuos instrumental analyses was conducted for NO_X, O_2 and CO_2. Visible emissions were monitored simultaneously with Test Run Gas-3C-1.

Table 2 is a summary of the results of the auxiliary boiler stack emissions testing. This summary documents the unit operating conditions, stack volumetric flow rates, observed concentrations, and calculated mass emission rates for each test run. NO_X concentrations were determined on a part per million volume basis (ppmv, dry). The NO_X, mass emission rates are presented in terms of pounds per hour (lbs/hr) and pounds per million British thermal units (lbs/MMBtu) for comparison with the permit limits.

Visible emission observations of the auxiliary boiler exhaust stack were performed by an Eastern Technical Associates of Raleigh, North Carolina certified EPA Method 9 observer. A one-hour visible emissions test run was conducted. The testing was conducted in the afternoon.

Examples of emission rate calculations, and other calculations necessary for the presentation of the results of this section are contained in Appendix B. Appendix C contains unit operational data obtained during the tests. Quality Assurance Activities are documented in Appendix D. Certificates of calibrations are contained in Appendix E of this report. Copies of the reference method strip chart records obtained during these tests are available in Appendix F of this report. Appendix G contains the "Visible Emissions Observation Forms" and the observer certifications. The FDEP facility permit is presented in appendix H for reference purposes.

Summary of Results
Auxiliary Boiler

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, RPO, DLD
Source: 99 MMBtu/hr Auxiliary Boiler

Test Number	Gas-3C-1	Gas-3C-2	Gas-3C-3		
Date	3/29/99	3/29/99	3/29/99		
Start Time	16:15	17:25	18:35		FDEP Permit Limits
Stop Time	17:15	18:25	19:35		
Auxiliary Boiler Operation				*Averages*	
Fuel Flow (lbs/hr, natural gas)	490.3	492.3	485.6	*489.4*	
Heat Input (MMBtu/hr, higher heat value (HHV))	11.34	11.38	11.23	*11.32*	99
Boiler Load (% Full Load, of 99 MMBtu/hr)	11.5%	11.5%	11.3%	*11.4%*	
Auxiliary Steam Pressure (psig)	87.7	87.0	87.9	*87.5*	
Auxiliary Steam Temperature (°F)	328.5	325.8	326.4	*326.9*	
Natural Fuel Data (Natural Gas, FGT)					
Fuel Heating Value (Btu/lb, HHV)	23122	23122	23122	*23122*	
Fuel Specific Gravity	0.5982	0.5982	0.5982	*0.5982*	
O_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8646	8646	8646	*8646*	
CO_2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1034	1034	1034	*1034*	
Heat Input (MMBtu/hr, Higher Heat Value)	11.34	11.38	11.23	*11.32*	
Heat Input (MMBtu/hr, Lower Heat Value)	10.20	10.24	10.10	*10.18*	
Ambient Conditions					
Atmospheric Pressure ("Hg)	29.88	29.88	29.90	*29.89*	
Temperature (°F): Dry bulb	84.0	79.7	77.8	*80.5*	
(°F): Wet bulb	67.0	63.2	68.9	*66.4*	
Humidity (lbs moisture/lb of air)	0.0100	0.0084	0.0128	*0.0104*	
Measured Emissions					
NO_x (ppmv, dry basis)	33.19	33.50	32.55	*33.08*	
Visible Emissions (% opacity, w/ Test Run Gas-3C-1)	0			0	10
O_2 (% volume, dry basis)	2.74	2.88	2.85	*2.82*	
CO_2 (% volume, dry basis)	10.47	10.53	10.54	*10.51*	
F_o (fuel factor, range = 1.600-1.836 for NG)	1.73	1.71	1.71	*1.72*	
Stack Volumetric Flow Rates					
via O_2 "F_d-factor" (SCFH, dry basis)	1.13E+05	1.14E+05	1.12E+05	*1.13E+05*	
via CO_2 "F_c-factor" (SCFH, dry basis)	1.12E+05	1.12E+05	1.10E+05	*1.11E+05*	
Calculated Emission Rates (via M-19 O_2 "F-factor")					
NO_x (lbs/hr)	0.447	0.457	0.437	*0.447*	
NO_x (lbs/MMBtu)	0.0394	0.0401	0.0389	*0.0395*	0.1

INITIAL COMPLIANCE TEST REPORT
for
NO. 2 FUEL OIL FUELED STACK EMISSIONS

on
POWER BLOCK 1

consisting of
UNITS 1A AND 1B, TWO WESTINGHOUSE 501F COMBINED CYCLE COMBUSTION TURBINES

at the
HINES ENERGY COMPLEX

in
POLK COUNTY, FLORIDA

Prepared for

FLORIDA POWER CORPORATION

May 1999

Cubix Job No. 4911

Prepared by

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INTRODUCTION

Emission testing was conducted on Power Block 1, which consists of two combined cycle combustion turbines manufactured by Siemens Westinghouse Power Corporation. These units, used to generate power, were recently installed at the Hines Energy Complex located near Fort Meade in Polk County, Florida. Florida Power Corporation (FPC) owns and operates this facility. This report documents the testing of each combustion turbine while fueled with No. 2 fuel oil. A separate report was previously provided for the testing of the units while fueled with natural gas. The testing was conducted by Cubix Corporation, Southeast Regional Office on April 1 through 2 and April 11 through 12, 1999.

The purpose of this testing was to determine the status of initial compliance for combustion turbine emissions with the permit limits set forth by the Florida Department of Environmental Protection (FDEP), Permit Numbers PSD-FL-195A and PA-92-33. Additionally, the emissions were measured to determine compliance with the Environmental Protection Agency (EPA) Code of Federal Regulations, Title 40, Part 60, (40 CFR 60) Subpart GG "Standards of Performance for Stationary Gas Turbines". The tests followed the procedures set forth in 40 CFR 60, Appendix A, Methods 1, 2, 3a, 4, 5, 9, 10, 19, 20, and 25a.

Each turbine's exhaust was analyzed for oxides of nitrogen (NO_X), carbon monoxide (CO), total hydrocarbon compounds (THC), oxygen (O_2), and carbon dioxide (CO_2) using continuous instrumental monitors. Particulate matter (PM) samples were collected iso-kinetically using a combined hot/cold manual sampling train. Visible emissions (VE) were determined by a certified observer. Analysis of the No. 2 fuel oil was provided by Intertek Testing Services laboratory of Tampa, Florida using American Society of Testing and Materials (ASTM) test methods. Table 1 provides background data pertinent to these tests.

This test report has been reviewed and approved for submittal to the FDEP by the following representatives:

Cubix Corporation

Florida Power Corporation

SUMMARY OF RESULTS

Florida Power Corporation (FPC) owns and operates the Hines Energy Complex in Polk County, Florida. At this facility two Westinghouse combined cycle combustion turbines, each equipped with an unfired heat recovery steam generator (HRSG), are used to generate electrical power. The combustion turbines are designated as Unit 1A and Unit 1B by FPC. Stack emissions from these units, while fueled with No. 2 fuel oil, are the subject of this report. Unit emissions, while fueled with natural gas, were previously reported.

A sampling traverse for changes in O_2 concentration (stratification) within the exhaust stack on each unit was conducted previously while fueled with natural gas. The first step in the test matrix for each unit consisted of conducting an initial O_2 sampling traverse of the combustion turbine/heat recovery steam generator (CT/HRSG) exhaust stack. Each turbine was set to the lowest load representative of normal operation, approximately 90 megawatts (MW), while operating under dry, low NO_X combustion and with Selective Catalytic Reduction (SCR) operating. O_2 concentrations were measured at 48 traverse points within the CT/HRSG stack to determine the eight points of lowest O_2 concentration. This initial traverse was conducted on each CT/HRSG stack. No significant stratification was found in either exhaust stack; therefore, all subsequent tests were conducted at the eight most convenient traverse points on each unit.

Cubix conducted three test runs at each of four load conditions across the operational range of the combustion turbine (~85 MW, ~110 MW, ~135 MW, and full load at ~155 MW). Each reduced load test run was 20 minutes in duration (8 sample points, 150 seconds per point). Full load is defined as 90 to 100% of the maximum permitted capacity, expressed as heat input, determined from the Westinghouse performance curve of heat input versus turbine inlet temperature for the unit. NO_X, O_2, and CO_2 were continuously monitored at all load conditions. Additional full load measurements included CO and THC using continuous instrumental monitors and iso-kinetic sampling for collection of PM samples. The full load test runs were 1 hour in duration for all constituents. A one-hour VE test was conducted simultaneously with one of the full load test runs. This test matrix was performed on both CT units.

Table 2, the executive summary, signifies the performance for each unit during the full load testing. These performance results are an average of the three full load test runs for each unit. These emissions are compared to the

permit limits set forth in FDEP Permit Nos. PSD-FL-195A and PA-92-33.

TABLE 2
Fuel Oil Executive Summary

Parameter	Unit 1A Westinghouse 501F Turbine	Unit 1B Westinghouse 501F Turbine	NSPS/FDEP Permit Limits
Percent Load (of capacity as heat input)	102.9%	102.7%	90 to 100%
NO_x (lbs/hr at 76°F inlet temperature)	234.0	-	294.92
NO_x (lbs/hr at 78°F inlet temperature)	-	206.0	293.38
VOC (lbs/hr, from THC measurements)	0.68	0.30	19.0
CO (lbs/hr)	4.24	3.78	93
PM/PM_{10} (lbs/hr)	26.0	27.2	44.8
SO_2 (lbs/hr)	5.11	5.25	94.0
Visible Emissions (% opacity)	2.2%	5%	20%

Tables 3 and 4 represent the Unit 1A test results for full load fuel oil (FO) and reduced load FO testing, respectively. These tabular summaries contain all pertinent operational parameters, ambient conditions, measured emissions, corrected concentrations, and calculated emission rates. NO_X emissions are reported in units of parts per million by volume (ppmv) on a dry basis, ppmv corrected to 15% excess O_2, and ppmv corrected to 15% excess O_2 and ISO conditions. The EPA defines ISO conditions as ambient atmospheric conditions of 59 degrees Fahrenheit (°F) temperature, 101.3 kilopascals (kPa) pressure, and 60% relative humidity. CO concentrations were determined on ppmv, dry basis. Volatile organic compound (VOC) concentrations were determined from THC measurements and were determined on a ppmv, wet basis as methane. Concentrations of PM were determined in units of grams per dry standard cubic feet (grams PM/DSCF). Mass emission rates for NO_X, CO, VOC, PM, and SO_2 are reported in terms of pounds per hour (lbs/hr). As stated in the test matrix above, only NO_X concentrations and emissions were applicable for the reduced load tests.

Tables 5 and 6 represent the Unit 1B test results for full load FO and reduced load FO testing, respectively. These tabular summaries contain all pertinent operational parameters, ambient conditions, measured emissions, corrected concentrations, and calculated emission rates. NO_X emissions are reported in units of ppmv on a dry basis, ppmv at 15% excess O_2, and ppmv at 15% excess O_2 and ISO conditions. CO concentrations were determined on ppmv, dry basis. VOC concentrations were determined from THC measurements and were determined on a ppmv, wet basis as methane. Concentrations of PM

were determined in units of grams PM/DSCF. Mass emission rates for NO_X, CO, VOC, PM, and SO_2 are reported in terms of lbs/hr.

Volumetric flow and mass emission rates were determined by stoichiometric calculation (EPA Method 19) based on measurements of diluent gas (O_2 or CO_2) concentrations, "F-factors" determined from fuel composition, and unit fuel flow rates. Examples of iso-kinetic calculations, emission rate calculations, and other calculations necessary for the presentation of the results of this section are contained in Appendix B.

The fuel sulfur content analyses, concentration percent weight, is contained in Appendix C of this report. A fuel oil sample was collected during the testing for each unit and shipped to Intertek Testing Services of Tampa, Florida for analysis. The fuel was analyzed for total fuel sulfur content by ASTM Method D2622. The SO_2 emission rates, reported in lbs/hr, were calculated from the results of these analyses and the measured fuel flow rates recorded during the tests.

The fuel bound nitrogen (FBN) analyses, concentration in parts per million (ppm) by weight, is contained in Appendix C of this report. A fuel sample was collected and shipped to the laboratory designated above for analysis. The fuel was analyzed for FBN by ASTM Method D4629. Results of FBN were below 150 ppm, the breakpoint value used for correction of exhaust NO_X emissions.

Visible emission observations of each CT/HRSG exhaust stack per EPA Method 9 were performed by an observer certified by Eastern Technical Associates of Raleigh, North Carolina. A one-hour visible emissions test run was conducted on each unit. VE were an average of 2.2% opacity on Unit 1A in the highest six-minute average and 5% opacity on Unit 1B in the highest six-minute average. No VE greater than 5% opacity was observed during the tests.

Appendix A contains all field data sheets used during these tests as well as the particulate matter analysis worksheets. Appendix B contains examples of all calculations necessary for the reduction of the data presented in this report. Appendix C contains the fuel analysis and Cubix's fuel calculation worksheet. Quality Assurance Activities are documented in Appendix D. Certificates of calibrations are contained in Appendix E of this report. Copies of the reference method strip chart records obtained during these tests are available in Appendix F of this report. Appendix G contains the "Visible Emissions Observation Forms" and the observer certifications. Appendix H contains the operational data provided by FPC during the test runs. The FDEP facility permit is presented in Appendix I for reference purposes.

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, RPO, DLD
Source: Unit 1A, a Westinghouse 501F Power Turbine

TABLE 3: Summary of Results
Full Load FO Tests
Unit 1A

Test Run Number	Oil-AC-1	Oil-AC-2	Oil-AC-3		
Date	4/11/99	4/11/99	4/11/99		
Start Time	18:28	20:14	22:28		FDEP
Stop Time (24 hour clock	19:28	21:20	23:28		Permit
Power Turbine Operation				*Averages*	Limits
Generator Output (MW, simple cycle mode)	153.8	156.3	158.1	*156.1*	
Heat Input (MMBtu/hr, based on GHV)	1795	1818	1835	*1816*	
Turbine Capacity (Mfg.'s Curve, heat input vs. capacity)	1746	1763	1788	*1766*	
Percent Load (% of maximum heat input at inlet temp)	102.9%	103.1%	102.6%	*102.9%*	
Engine Compressor Discharge Pressure (psia)	207.5	209.4	211.8	*209.5*	
Turbine Air Inlet Temperature (°F)	79.8	76.2	71.2	*75.7*	
Mean Turbine Exhaust Temperature (°F)	1106	1103	1100	*1103*	
Water Injection Stage A & B Flow (gpm)	97.2	98.8	98.8	*98.3*	
Water to Fuel Ratio (lbs H_2O/lb fuel)	0.6	0.6	0.6	*0.6*	
Water Injection Stage A & B Flow (KPPH)	48.6	49.4	49.4	*49.2*	
Water to Fuel Ratio (lbs H_2O/lb fuel, calculated)	0.539	0.541	0.536	*0.538*	
Fuel Data (No. 2 Fuel Oil)					
O_2 "F-factor" (DSCFex/MMBtu fuel burned, calculated)	9151	9151	9151	*9151*	
CO_2 "F-factor" (DSCFex/MMBtu fuel burned, calculated)	1389	1389	1389	*1389*	
O_2 "F-factor" (DSCFex/MMBtu fuel burned, published)	9190	9190	9190	*9190*	
CO_2 "F-factor" (DSCFex/MMBtu fuel burned, published)	1420	1420	1420	*1420*	
Fuel Flow (KPPH)	90.25	91.40	92.24	*91.30*	
Total Sulfur in Fuel (% weight)	0.0028	0.0028	0.0028	*0.0028*	0.05
Fuel Bound Nitrogen (ppm, weight)	97	97	97	*97*	
Fuel Heating Value (Btu/lb, GHV)	19,892	19.892	19.892	*19,892*	
Heat Input (MMBtu/hr, based on GHV)	1795.3	1818.2	1834.9	*1816.1*	
Ambient Conditions					
Atmospheric Pressure ("Hg)	29.66	29.71	29.73	*29.70*	
Temperature (°F): Dry bulb	82.0	74.8	72.3	*76.4*	
(°F): Wet bulb	72.9	71.6	71.4	*72.0*	
Humidity (lbs moisture/lb of air)	0.0150	0.0157	0.0161	*0.0156*	
Cubix Measurements					
NOx (ppmv, dry basis)	45.24	41.31	38.55	*41.70*	
NO_X (ppmv, dry @ 15% O_2)	36.0	32.9	30.7	*33.2*	
NO_X (ppmv @ 15% O_2, ISO Day)	40.2	37.5	35.8	*37.8*	
CO (ppmv, dry basis)	1.25	1.25	1.23	*1.24*	
O_2 (% volume, dry basis)	13.49	13.50	13.50	*13.50*	
CO_2 (% volume, dry basis)	5.63	5.62	5.72	*5.66*	
THC (ppmv as CH_4, wet basis)	0.26	0.33	0.36	*0.32*	
PM (grams PM/DSCF exhaust gas)	2.32E-04	2.93E-04	2.29E-04	*2.51E-04*	
Visible Emissions (% opacity)	**2.2**			2.2	20
H_2O (% volume)	7.50	7.95	9.34	*8.26*	
F_o (Fuel factor = 1.260 - 1.413 for distillate oil)	1.32	1.32	1.29	*1.31*	
Stack Volumetric Flow Rates (from calculated "F-factors")					
via O_2 "F-factor" (SCFH, dry basis)	4.63E+07	4.70E+07	4.74E+07	*4.69E+07*	
via CO_2 "F-factor" (SCFH, dry basis)	4.43E+07	4.49E+07	4.46E+07	*4.46E+07*	
Calculated Emission Rates (via M-19 "F-factors")					
NO_X (lbs/hr)	**250**	**232**	**218**	*234*	294.92[1]
CO (lbs/hr)	**4.21**	**4.27**	**4.24**	*4.24*	93.0
THC (lbs/hr)	**0.54**	**0.70**	**0.78**	*0.68*	19.0
PM/PM_{10} (lbs/hr, including H_2SO_4 mist)	**23.7**	**30.3**	**23.9**	*26.0*	44.8
SO_2 (lbs/hr, based on fuel flow and fuel S)	**5.05**	**5.11**	**5.16**	*5.11*	94.0

[1] Permit Limit based upon actual average turbine air inlet temperature during testing

Testing by Cubix Corporation, - Austin, Texas - Gainesville, Florida

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, RPO, DLD
Source: Unit 1A, a Westinghouse 501F Power Turbine

TABLE 4: Summary of Results
Reduced Load FO Testing
Unit 1A

Test Run No.	Oil-AC-4	Oil-AC-5	Oil-AC-6	Oil-AC-7	Oil-AC-8	Oil-AC-9	Oil-AC-10	Oil-AC-11	Oil-AC-12
Date	4/11-12/99	4/12/99	4/12/99	4/12/99	4/12/99	4/12/99	4/12/99	4/12/99	4/12/99
Start Time	23:55	00:24	00:52	01:30	01:59	02:28	04:00	04:29	04:57
Stop Time	00:16	00:44	01:14	01:50	02:19	02:48	04:20	04:49	05:17
Power Turbine Operation	**~136 MW Generator Output**			**~111 MW Generator Output**			**~85 MW Generator Output**		
Generator Output (MW, simple cycle mode)	136.0	135.9	136.6	111.5	112.3	111.3	84.3	85.8	85.0
Heat Input (MMBtu/hr, based on GHV)	1600.6	1597.0	1609.5	1354.9	1362.6	1359.8	1118.4	1128.9	1126.5
Turbine Capacity (Mfg.'s Curve, heat input vs. capacity)	1787	1789	1791	1784	1794	1794	1794	1794	1794
Percent Load (% of maximum heat input at inlet temp)	89.6%	89.3%	89.8%	75.9%	76.0%	75.8%	62.3%	62.9%	62.8%
Engine Compressor Discharge Pressure (psia)	192.1	192.6	192.6	172.4	172.4	171.8	156.3	155.7	155.7
Turbine Air Inlet Temperature (°F)	71.5	71.0	70.5	72.0	70.0	70.0	70.0	70.0	70.0
Mean Turbine Exhaust Temperature (°F)	1068	1065	1065	1037	1039	1034	969	969	969
Water Injection Stage A & B Flow (gpm)	70.4	71.5	71.5	46.0	46.0	47.0	28.2	28.2	28.2
Water to Fuel Ratio (lbs H_2O/lb fuel)	0.5	0.5	0.5	0.4	0.4	0.4	0.2	0.2	0.2
Water Injection Stage A & B Flow (KPPH)	35.2	35.7	35.8	23.0	23.0	23.5	14.1	14.1	14.1
Water to Fuel Ratio (lbs H_2O/lb fuel, calculated)	0.437	0.445	0.442	0.338	0.336	0.344	0.251	0.249	0.249
Fuel Data (No.2 Fuel Oil)									
O_2 "F-factor" (DSCFex/MMBtu fuel burned) Published	9151	9151	9151	9151	9151	9151	9151	9151	9151
CO_2 "F-factor" (DSCFex/MMBtu fuel burned) Published	1390	1390	1390	1390	1390	1390	1390	1390	1390
O_2 "F-factor" (DSCFex/MMBtu fuel burned, published)	9190	9190	9190	9190	9190	9190	9190	9190	9190
CO_2 "F-factor" (DSCFex/MMBtu fuel burned, published)	1420	1420	1420	1420	1420	1420	1420	1420	1420
Fuel Flow (KPPH)	80.48	80.30	80.93	68.13	68.51	68.37	56.23	56.76	56.64
Total Sulfur in Fuel (% weight)	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029
Fuel Bound Nitrogen (ppm by weight)	92	92	92	92	92	92	92	92	92
Fuel Heating Value (Btu/lb, GHV)	19,889	19,889	19,889	19,889	19,889	19,889	19,889	19,889	19,889
Heat Input (MMBtu/hr, based on GHV)	1600.6	1597.0	1609.5	1354.9	1362.6	1359.8	1118.4	1128.9	1126.5
Ambient Conditions									
Atmospheric Pressure ("Hg)	29.71	29.72	29.70	29.70	29.70	29.69	29.68	29.68	29.69
Temperature (°F): Dry bulb	72.1	71.8	71.0	71.1	70.3	70.3	70.6	71.2	71.3
(°F): Wet bulb	71.2	71.2	71.0	70.2	69.9	69.9	69.8	70.0	69.9
Humidity (lbs moisture/lb of air)	0.0160	0.0161	0.0161	0.0154	0.0154	0.0154	0.0153	0.0153	0.0152
Cubix Measurements									
NO_x (ppmv, dry basis)	40.09	38.97	38.43	31.63	30.74	29.42	24.92	24.78	24.56
O_2 (% volume, dry basis)	13.88	13.88	13.87	14.38	14.42	14.45	15.26	15.22	15.22
CO_2 (% volume, dry basis)	5.29	5.32	5.36	4.96	4.95	4.95	4.20	4.30	4.30
F_o (fuel factor, range = 1.260 - 1.413 for FO)	1.33	1.32	1.31	1.31	1.31	1.30	1.34	1.32	1.32
Stack Volumetric Flow Rates (from calculated "F-factors")									
via O_2 "F-factor" (SCFH, dry basis)	4.38E+07	4.37E+07	4.40E+07	3.99E+07	4.04E+07	4.05E+07	3.81E+07	3.82E+07	3.81E+07
via CO_2 "F-factor" (SCFH, dry basis)	4.30E+07	4.26E+07	4.26E+07	3.88E+07	3.91E+07	3.90E+07	3.78E+07	3.73E+07	3.72E+07
Calculated Emission Rates (via M-19 "F-factors")									
NO_x (ppmv, dry @ 15% O_2)	33.7	32.8	32.3	28.6	28.0	26.9	26.1	25.7	25.5
NO_x (ppmv, dry @ 15% O_2, ISO Day)	39.1	38.1	37.6	32.9	32.3	31.1	30.0	29.6	29.3
NO_x (lbs/hr)	**210**	**203**	**202**	**151**	**148**	**142**	**113**	**113**	**112**

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, RPO, DLD
Source: Unit 1B, a Westinghouse 501F Power Turbine

TABLE 5: Summary of Results
Full Load FO Tests
Unit 1B

Test Run Number	Oil-BC-4	Oil-BC-5	Oil-BC-6		FDEP Permit Limits
Date	4/1/99	4/1/99	4/1/99		
Start Time	13:10	15:50	17:50		
Stop Time	14:10	16:50	18:50		
Power Turbine Operation				*Averages*	
Generator Output (MW, simple cycle mode)	153.0	153.8	159.1	*155.3*	
Heat Input (MMBtu/hr, based on GHV)	1781	1790	1832	*1801*	
Turbine Capacity (Mfg.'s Curve, heat input vs. capacity)	1740	1736	1786	*1754*	
Percent Load (% of maximum heat input at inlet temp)	102.4%	103.1%	102.6%	*102.7%*	
Engine Compressor Discharge Pressure (psia)	207.9	207.2	212.0	*209.0*	
Turbine Air Inlet Temperature (°F)	81.0	81.8	71.6	*78.1*	
Mean Turbine Exhaust Temperature (°F)	1103	1109	1099	*1104*	
Water Injection Stage A & B Flow (gpm)	97.20	98.26	96.30	*97.25*	
Water to Fuel Ratio (lbs H_2O/lb fuel)	0.6	0.6	0.6	*0.6*	
Water Injection Stage A & B Flow (KPPH)	48.62	49.15	48.17	*48.65*	
Water to Fuel Ratio (lbs H_2O/lb fuel, calculated)	0.543	0.546	0.523	*0.537*	
Fuel Data (No. 2 Fuel Oil)					
O_2 "F-factor" (DSCFex/MMBtu fuel burned, calculated)	9151	9151	9151	*9151*	
CO_2 "F-factor" (DSCFex/MMBtu fuel burned, calculated)	1390	1390	1390	*1390*	
O_2 "F-factor" (DSCFex/MMBtu fuel burned, published)	9190	9190	9190	*9190*	
CO_2 "F-factor" (DSCFex/MMBtu fuel burned, published)	1420	1420	1420	*1420*	
Fuel Flow (KPPH)	89.55	90.00	92.12	*90.56*	
Total Sulfur in Fuel (% weight)	0.0029	0.0029	0.0029	*0.0029*	0.05
Fuel Bound Nitrogen (ppm by weight)	92	92	92	*92*	
Fuel Heating Value (Btu/lb, GHV)	19,889	19,889	19,889	*19,889*	
Heat Input (MMBtu/hr, based on GHV)	1781.1	1790.0	1832.2	*1801.1*	
Ambient Conditions					
Atmospheric Pressure ("Hg)	29.69	29.64	29.65	*29.66*	
Temperature (°F): Dry bulb	87.0	85.0	76.2	*82.7*	
(°F): Wet bulb	74.0	73.0	70.3	*72.4*	
Humidity (lbs moisture/lb of air)	0.0148	0.0144	0.0144	*0.0145*	
Cubix Measurements					
NOx (ppmv, dry basis)	38.88	38.14	36.78	*37.93*	
NO_x (ppmv, dry @ 15% O_2)	30.3	29.6	28.7	*29.6*	
NO_x (ppmv @ 15% O_2, ISO Day)	33.5	32.5	32.3	*32.8*	
CO (ppmv, dry basis)	1.24	1.10	1.09	*1.14*	
O_2 (% volume, dry basis)	13.34	13.30	13.34	*13.33*	
CO_2 (% volume, dry basis)	5.57	5.56	5.48	*5.54*	
THC (ppmv as CH_4, wet basis)	0.26	0.12	0.05	*0.14*	
PM (grams PM/DSCF exhaust gas)	2.51E-04	2.97E-04	2.65E-04	*2.71E-04*	
Visible Emissions (% opacity)		**5.0**		**5.0**	20
H_20 (% volume)	8.97	9.12	9.25	*9.11*	
F_o (Fuel factor = 1.260 - 1.413 for distillate oil)	1.36	1.37	1.38	*1.37*	
Stack Volumetric Flow Rates (from calculated "F-factors")					
via O_2 "F-factor" (SCFH, dry basis)	4.51E+07	4.50E+07	4.64E+07	*4.55E+07*	
via CO_2 "F-factor" (SCFH, dry basis)	4.44E+07	4.48E+07	4.65E+07	*4.52E+07*	
Calculated Emission Rates (via M-19 "F-factors")					
NO_x (lbs/hr)	**209**	**205**	**204**	*206*	293.38[†]
CO (lbs/hr)	**4.06**	**3.60**	**3.68**	*3.78*	93.0
THC (lbs/hr)	**0.54**	**0.25**	**0.11**	*0.30*	19.0
PM/PM_{10} (lbs/hr, including H_2SO_4 mist)	**24.9**	**29.5**	**27.1**	*27.2*	44.8
SO_2 (lbs/hr, based on fuel flow and fuel S)	**5.19**	**5.22**	**5.34**	*5.25*	94.0

[†] Permit Limit based upon actual average turbine air inlet temperature during testing

Company: Florida Power Corporation
Plant: Hines Energy Complex
Location: near Ft. Meade in Polk County, Florida
Technicians: LJB, RPO, DLD
Source: Unit 1B, a Westinghouse 501F Power Turbine

TABLE 6: Summary of Results
Reduced Load FO Testing
Unit 1B

Test Run No.	Oil-BC-1	Oil-BC-2	Oil-BC-3	Oil-BC-7	Oil-BC-8	Oil-BC-9	Oil-BC-10	Oil-BC-11	Oil-BC-12
Date	4/1/99	4/1/99	4/1/99	4/2/99	4/2/99	4/2/99	4/2/99	4/2/99	4/2/99
Start Time	08:55	09:28	10:04	08:10	08:45	09:18	10:20	10:53	11:25
Stop Time	09:15	09:48	10:24	08:30	09:05	09:39	10:40	11:13	11:45
Power Turbine Operation	**~85 MW Generator Output**			**~132 MW Generator Output**			**~110 MW Generator Output**		
Generator Output (MW, simple cycle mode)	86.0	85.2	85.3	131.9	131.9	131.5	110.9	110.2	109.1
Heat Input (MMBtu/hr, based on GHV)	1133.6	1123.9	1129.1	1539.5	1547.3	1547.1	1352.2	1343.9	1330.6
Turbine Capacity (Mfg.'s Curve, heat input vs. capacity)	1789	1774	1769	1804	1804	1804	1787	1769	1769
Percent Load (% of maximum heat input at inlet temp)	63.4%	63.3%	63.8%	85.4%	85.8%	85.8%	75.7%	76.0%	75.2%
Engine Compressor Discharge Pressure (psia)	155.2	155.2	155.2	189.6	189.6	189.6	171.6	171.0	170.5
Turbine Air Inlet Temperature (°F)	71.0	74.0	75.0	68.0	68.0	68.0	71.5	75.0	75.0
Mean Turbine Exhaust Temperature (°F)	995	994	995	1041	1043	1046	1038	1041	1038
Water Injection Stage A & B Flow (gpm)	28.3	28.3	28.3	63.2	63.2	64.4	44.2	44.2	44.2
Water to Fuel Ratio (lbs H_2O/lb fuel)	0.3	0.3	0.3	0.5	0.5	0.5	0.4	0.4	0.4
Water Injection Stage A & B Flow (KPPH)	14.2	14.2	14.2	31.6	31.6	32.2	22.1	22.1	22.1
Water to Fuel Ratio (lbs H_2O/lb fuel, calculated)	0.248	0.251	0.249	0.408	0.406	0.414	0.325	0.327	0.331
Fuel Data (No.2 Fuel Oil)									
O_2 "F-factor" (DSCFex/MMBtu fuel burned, calculated)	9151	9151	9151	9151	9151	9151	9151	9151	9151
CO_2 "F-factor" (DSCFex/MMBtu fuel burned, calculated)	1389	1389	1389	1389	1389	1389	1389	1389	1389
O_2 "F-factor" (DSCFex/MMBtu fuel burned, published)	9190	9190	9190	9190	9190	9190	9190	9190	9190
CO_2 "F-factor" (DSCFex/MMBtu fuel burned, published)	1420	1420	1420	1420	1420	1420	1420	1420	1420
Fuel Flow (KPPH)	56.99	56.50	56.76	77.40	77.79	77.78	67.98	67.56	66.89
Total Sulfur in Fuel (% weight)	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028
Fuel Bound Nitrogen (ppm by weight)	97	97	97	97	97	97	97	97	97
Fuel Heating Value (Btu/lb, GHV)	19,892	19,892	19,892	19,892	19,892	19,892	19,892	19,892	19,892
Heat Input (MMBtu/hr, based on GHV)	1133.6	1123.9	1129.1	1539.5	1547.3	1547.1	1352.2	1343.9	1330.6
Ambient Conditions									
Atmospheric Pressure ("Hg)	29.76	29.76	29.76	29.74	29.74	29.75	29.75	29.75	29.75
Temperature (°F): Dry bulb	78.3	79.2	83.1	71.0	71.8	72.2	76.3	78.2	81.8
(°F): Wet bulb	71.7	72.1	73.0	70.4	71.2	71.7	72.8	73.8	75.0
Humidity (lbs moisture/lb of air)	0.0149	0.0150	0.0148	0.0156	0.0160	0.0163	0.0163	0.0166	0.0168
Cubix Measurements									
NO_x (ppmv, dry basis)	26.40	25.44	25.72	29.62	31.39	32.46	31.44	32.84	32.93
O_2 (% volume, dry basis)	15.14	15.15	15.12	14.11	14.07	14.03	14.48	14.48	14.46
CO_2 (% volume, dry basis)	4.37	4.37	4.37	5.15	5.19	5.20	4.84	4.93	4.89
F_o (fuel factor, range = 1.260 - 1.413 for FO)	1.32	1.32	1.32	1.32	1.32	1.32	1.33	1.30	1.32
Stack Volumetric Flow Rates (from calculated "F-factors")									
via O_2 "F-factor" (SCFH, dry basis)	3.76E+07	3.74E+07	3.74E+07	4.34E+07	4.33E+07	4.31E+07	4.03E+07	4.00E+07	3.95E+07
via CO_2 "F-factor" (SCFH, dry basis)	3.60E+07	3.57E+07	3.59E+07	4.15E+07	4.14E+07	4.13E+07	3.88E+07	3.79E+07	3.78E+07
Calculated Emission Rates (via M-19 "F-factors")									
NO_x (ppmv, dry @ 15% O_2)	27.0	26.1	26.3	25.7	27.1	27.9	28.9	30.2	30.2
NO_x (ppmv, dry @ 15% O_2, ISO Day)	30.8	29.5	29.5	30.0	31.8	32.9	33.7	35.1	35.2
NO_x (lbs/hr)	**119**	**114**	**115**	**153**	**162**	**167**	**151**	**157**	**155**

Testing by Cubix Corporation - Austin, Texas - Gainesville, Florida

ATTACHMENT HEC-EU5-B6

EMISSIONS UNIT COMMENT

TRIVIAL ACTIVITIES

The trivial activities identified in this application are provided for information only and are identified as examples of, but not limited to, the trivial activities identified by the Division of Air Resources Management's (DARM's) guidance. It is understood that such activities do not have to be included in with the Title V Application. The trivial activities identified herein are consistent, in terms of amounts of emissions and types, with those activities listed in DARM's guidance.

NOTIFICATION OF TEMPORARY EXEMPTIONS

Pursuant to Rule 62-210.300(3)(b)1., notice is herein provide that the emissions units listed below are not subject to a permit issued by the Department of Environmental Protection and are exempt from permitting until a final determination is made under the Title V permitting requirements (Rule 62-213 F.A.C.). These units would not have triggered review under Rules 62-212.400 or 62-212.500 or any new source performance standard listed in Rule 62-204.800 F.A.C.

Attachment HEC-EU5-B6
General Emissions Unit Information for Unregulated Emissions Unit

Table 1. FPC, Hines Energy Complex, Unregulated Emissions Unit

Area	Emission Unit Description	Status
Offices	Office equipment operation	TR
	Routine repairs	TR
	Heating & cooling systems	TR (except Part 82)
Parking Lot	Vehicles	TR/ER
Maintenance	Sand blaster, welding, lathes, hand-held tools, etc.	ER/TR
	Cabinets with solvents, oils, flammables, etc.	TR
	Routine maintenance	TR
	Parts washer- Safety Kleen	TR
	Air compressors	TR
	Cylinders (acetylene, N2, O2, argon, CO2., etc.)	TR
	Golf carts	TR
Oil/ water separator area	Oil/water separator (2)	TR
Fire pump	Diesel generator	ER/UR
	Diesel oil tank	UR
Water storage tanks	Fire water tank(s)	ER
Gas turbine	On-line cleaner for gas turbine (clean for compressor efficiency); degreaser added; stored in 55 gal. drums	TR
	Electric motor (115v/230)	TR
Water treatment	Sealed tanks	TR
	Work bench area	TR
	Electric motors	TR
	Welding equipment	ER/TR
	Fire equipment	ER/TR
Combustion turbines	Lube oil vents with demister	UR
	False Start Drain Tank	TR
	Hydrogen venting & purge	TR
	CO2 tank (liquid)/ purge	TR
	Fire System	ER/TR

Attachment HEC-EU5-B6
General Emissions Unit Information for Unregulated Emissions Unit

Table 1. FPC, Hines Energy Complex, Unregulated Emissions Unit

Area	Emission Unit Description	Status
	Air compressors	TR
HRSG	Steam Vents CEM Ammonium Tank (30,000 gal)	
Oil storage tanks	90,470 bbl capacity	UR
	Lube oil vent with demister	UR
Substation/ switchyard	Transformers and associated equipment	TR
General Site	Surface coating < 6.0 gal/day	ER
	Brazing, soldering or welding	ER/TR
	Plant grounds maintenance	TR
	Routine maintneance	TR
	Oil water separators	TR
	CEM equipment & calibration gas venting	TR
	Compressed air system & miscellaneous compresors	TR
	Non-halogenerated solvents	TR/UR
	Fire water tank	ER/TR
	Plant vehicles/ Fugitive PM	UR

Status Key: ER = Exempt by Rule 62-210.300(3)(a)
TR = Trivial
UR = Unregulated

Florida Power Corporation Storage

Master Listing of Active Tanks

SC = Spill Containment
LLD = Line leak detector
LINED = Lined dike
DL = Dispenser Liner
SS = Stainless Steel
N/A = —

LOCATION	DEP TANK#	MATERIAL	SIZE (GAL)	SIZE (BBL)	INSTALL	CONTENT	CONFIG	STATUS	SC	LLD	DL	MONITOR
HIGGINS C.T. #01 (#1 TANK)	1	PAINT STL	404922	9,641	3/15/69	#2 FUEL OIL	ABOVE	IN USE		N	—	—
HIGGINS C.T. #02 (#2 TANK)	2	PAINT STL	635670	15,135	12/1/70	#2 FUEL OIL	ABOVE	T.O.S.		N	—	—
HIGGINS C.T. #11	11	DW-FRP	546	13	12/15/92	WASTE OIL	BELOW	IN USE	Y	Y	—	—
HIGGINS C.T. #12	12	DW-FRP	546	13	12/15/92	WASTE OIL	BELOW	IN USE	Y	Y	—	—
HIGGINS C.T. #13	13	DW-FRP	546	13	12/15/92	WASTE OIL	BELOW	IN USE	Y	Y	—	—
HIGGINS C.T. #14	14	DW-FRP	546	13	12/15/92	WASTE OIL	BELOW	IN USE	Y	Y	—	—
HIGGINS PLANT #01 (#1 TANK)	3	PAINT STL	2335704	55,612	6/1/51	#6 FUEL OIL	ABOVE	T.O.S.		N	—	—
HIGGINS PLANT #02 (#2 TANK)	4	PAINT STL	3369702	80,231	6/1/53	#6 FUEL OIL	ABOVE	T.O.S.		N	—	—
HIGGINS PLANT #04	\	PAINT STL	110	3	1/1/68	DIESEL-EQUIPMENT	ABOVE	IN USE	N	N	—	—
HIGGINS PLANT #05	\	PAINT STL	110	3	1/1/68	DIESEL-EQUIPMENT	ABOVE	IN USE	N	N	—	—
HIGGINS PLANT #07	\	PAINT STL	500	12	1/1/86	AUX. DIESEL	ABOVE	IN USE	N	N	—	—
HIGGINS PLANT #08	\	PAINT STL	0		1/1/50	WATER	ABOVE	IN USE	—	—	—	—
HIGGINS PLANT #09	\	PAINT STL	2184	52		HYDRAULIC OIL	ABOVE	IN USE	N	N	—	—
HIGHLANDS OPERATING CENTER	1	CONVAULT	2000	48	2/96	DIESEL FUEL	ABOVE	IN USE	Y	—	—	
HINES ENERGY COMPLEX (1)	1	PAINT STL	3799740	90,470		#2 FUEL OIL	ABOVE		Y	—	—	Y
HINES ENERGY COMPLEX (2)			5550			LUBE OIL	ABOVE					
HINES ENERGY COMPLEX (3)			300			DIESEL FUEL	ABOVE					
HINES ENERGY COMPLEX (4)			4800			SODIUM HYPOCHLORITE	ABOVE					
HINES ENERGY COMPLEX (5)			7000			LUBE OIL	ABOVE					
HINES ENERGY COMPLEX (6)			7000			LUBE OIL	ABOVE					
HINES ENERGY COMPLEX (7)			500			WASTE OIL	BELOW					
HINES ENERGY COMPLEX (8)			500			WASTE OIL	BELOW					
(9)	2		30000			Ammonia	Above					
INTRCSN. CITY C.T. P1A	23	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P1B	24	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P2A	25	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P2B	26	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P3A	27	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P3B	28	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P4A	29	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P4B	30	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P5A	31	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P5B	32	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P6A	33	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. P6B	34	DW-FRP	183	4	4/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	—
INTRCSN. CITY C.T. #13	16	PAINT STL	50000	1,190	10/1/78	WASTE OIL	ABOVE	IN USE	—	—	—	—
INTERCESSION CITY C.T. P7	19	DW-FRP	2500	48	1/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	INSTALL
INTERCESSION CITY C.T. P8	20	DW-FRP	2500	48	1/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	INSTALL
INTERCESSION CITY C.T. P9	21	DW-FRP	2500	48	1/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	INSTALL
INTERCESSION CITY C.T. P10	22	DW-FRP	2500	48	1/1/93	WASTE OIL	BELOW	IN USE	Y	Y	—	INSTALL
I.C. C.T. #2 (W. TANK)	17	PAINT STL	4209072	100,216	5/1/74	#2 FUEL OIL	ABOVE	IN USE	N	N	—	MW
I.C. C.T. #1 (E. TANK)	18	PAINT STL	4209072	100,216	5/1/74	#2 FUEL OIL	ABOVE	IN USE	N	N	—	MW
I.C. C.T. #3 (S. TANK)	35	PAINT STL	3999996	95,238	9/93	#2 FUEL OIL	ABOVE	IN USE	N	N	—	MW
INTERCESSION CITY C.T. P11	36	DW-FRP	2500	59	5/96	WASTE OIL	BELOW	IN USE	Y	—	—	INSTALL
INTRCSN. CITY C.T. #16	\	PAINT STL	250	6	1/1/71	UNLEAD GAS	ABOVE	IN USE	N	N		—
INTERCESSION CITY		PLASTIC				ACID	INSIDE	IN USE	Y	—	—	NONE
INTERCESSION CITY #22	\	PAINT STL	49980	1,190	5/1/74	SERVICE WATER	ABOVE	IN USE	—	—	—	—
INTERCESSION CITY		PAINT STL	60018	1,429	9/93	R.O. PRODUCT	ABOVE	IN USE	—	—	—	—
INTERCESSION CITY		PAINT STL	180012	4,286	9/93	FIRE WTR STORAGE 1A	ABOVE	IN USE	—	—	—	—
INTERCESSION CITY		PAINT STL	180012	4,286	9/93	FIRE WTR STORAGE 1B	ABOVE	IN USE	—	—	—	—
INTERCESSION CITY		PAINT STL	1099980	26,190	9/93	DEMIN WTR STRG 1A	ABOVE	IN USE	—	—	—	—
INTERCESSION CITY		PAINT STL	1099980	26,190	9/93	DEMIN WTR STRG 1B	ABOVE	IN USE	—	—	—	—
INTERCESSION CITY		PAINT STL	500010	11,905	9/93	WASTE WTR EQULATN	ABOVE	IN USE	—	—	—	—

ATTACHMENT HEC-FE-8

LIST OF EQUIPMENT/ACTIVITIES REGULATED UNDER TITLE VI

ATTACHMENT HEC-FE-8
LIST OF EQUIPMENT / ACTIVITIES REGULATED — TITLE VI

The FPC Hines Energy Complex does not currently have any refrigeration and air-conditioning units on the plant site that meet the 50-pound threshold established by the Department.

Completed 11-27-03
RB

Progress Energy

RECEIVED
NOV 21 2003
DIVISION OF AIR
RESOURCE MANAGEMENT

November 17, 2003

Mr. Michael Cooke, Director
Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blair Stone Rd. MS 5500
Tallahassee, FL 32399-2400

Subject: Additional Responsible Officials for Title V – Florida Power Corporation d/b/a Progress Energy Florida Hines Energy Complex and Tiger Bay Plant

Dear Mr. Cooke:

As the Responsible Official for the Hines Energy Complex and Tiger Bay Plant, I am submitting a Department of Environmental Protection form 62-213.900(8) for each plant to identify additional Responsible Officials.

If you have any questions, please contact me at (863) 519-6103.

Very truly yours,

Roger B. Zirkle

Attachments

C: Mr. Paul V. Crimi
Mr. J. Michael Kennedy
Mr. George Kerst
Mr. Dennis A. Merrick
Mr. Leonard Kozlov (FL-DEP)
Mr. Scott Sheplak (FL-DEP)

Department of
Environmental Protection

Division of Air Resource Management

RESPONSIBLE OFFICIAL NOTIFICATION FORM

Note: A responsible official is not necessarily a designated representative under the Acid Rain Program. To become a designated representative, submit a certificate of representation to the U.S. Environmental Protection Agency (EPA) in accordance with 40 CFR Part 72.24.

Identification of Facility

1. Facility Owner/Company Name: Florida Power Corporation d/b/a Progress Energy Florida, Inc.	
2. Site Name: **Tiger Bay Plant**	3. County: Polk County
4. Title V Air Operation Permit/Project No. *(leave blank for initial Title V applications)*: 1050223-002-AV	

Notification Type *(Check one or more)*

__ **INITIAL**:	Notification of responsible officials for an initial Title V application.
__ **RENEWAL**:	Notification of responsible officials for a renewal Title V application.
X **CHANGE**:	Notification of change in responsible official(s).
	Effective date of change in responsible official(s) September 10, 2003

Primary Responsible Official

1. Name and Position Title of Responsible Official: Roger B. Zirkle – Plant Manager

✓ 11-27-03 RBZ

2. Responsible Official Mailing Address:
   Organization/Firm: Progress Energy Florida, Inc.
   Street Address: 100 Central Ave. Mail Code HE44
   City: St. Petersburg State: FL Zip Code: 33701

3. Responsible Official Telephone Numbers:
   Telephone: 863/519-6103 Fax: (863) 519-6110

4. Responsible Official Qualification *(Check one or more of the following options, as applicable)*:

[X] For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.

[ ] For a partnership or sole proprietorship, a general partner or the proprietor, respectively.

[ ] For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.

[ ] The designated representative at an Acid Rain source.

5. Responsible Official Statement:

I, the undersigned, am a responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this notification. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this notification are true, accurate and complete. Further, I certify that I have authority over the decisions of all other responsible officials, if any, for purposes of Title V permitting.

Signature

11-17-03

Date

Additional Responsible Official

1. Name and Position Title of Responsible Official:
Dennis A. Merrick, Production Manager – CT

11-27-03

2. Responsible Official Mailing Address:
Organization/Firm: Progress Energy Florida, Inc.
Street Address: 100 Central Ave. Mail Code TB44
City: St. Petersburg State: FL Zip Code: 33701

3. Responsible Official Telephone Numbers:
Telephone: 863/285-2601 Fax: (863) 285-2603

4. Responsible Official Qualification *(Check one or more of the following options, as applicable)*:

[X] For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.
[ ] For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
[ ] For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
[ ] The designated representative at an Acid Rain source.

Additional Responsible Official

1. Name and Position Title of Responsible Official:
Paul V. Crimi, General Manager CT Operations

11-27-03

2. Responsible Official Mailing Address:
Organization/Firm: Progress Energy Florida, Inc.
Street Address: 100 Central Ave. Mail Code BB1C
City: St. Petersburg State: FL Zip Code: 33701

3. Responsible Official Telephone Numbers:
Telephone: (727) 826-4224 Fax: (727) 826-4222

4. Responsible Official Qualification *(Check one or more of the following options, as applicable)*:

[X] For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.
[ ] For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
[ ] For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
[ ] The designated representative at an Acid Rain source.

Additional Responsible Official

1. Name and Position Title of Responsible Official:
J. Michael Kennedy, Manager Permitting & Compliance, DR

11-27-03

2. Responsible Official Mailing Address:
Organization/Firm: Progress Energy Florida, Inc.
Street Address: 100 Central Ave. Mail Code BB1A
City: St. Petersburg State: FL Zip Code: 33701

3. Responsible Official Telephone Numbers:
Telephone: (727) 826-4334 Fax: (727) 826-4216

4. Responsible Official Qualification *(Check one or more of the following options, as applicable)*:

[ ] For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.

[ ] For a partnership or sole proprietorship, a general partner or the proprietor, respectively.

[ ] For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.

[X] The designated representative at an Acid Rain source.

Progress Energy

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DIVISION OF AIR
RESOURCE MANAGEMENT

Progress Energy Florida, Inc
Bayboro Plant
160 13th Ave., S.
St. Petersburg, FL 33701

Bruce M. Baldwin
Vice President
CT – Operations Department
(727) 826-4201

September 10, 2003

Mr. Howard Rhodes, Director
Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blair Stone Rd. MS 5500
Tallahassee, FL 32399-2400

Subject: Alternate Responsible Officials: Title V Air Permits

Dear Mr. Rhodes:

This letter is intended to delegate the alternate "responsible officials" for Title V air permits for Florida Power Corporation d/b/a Progress Energy Florida combustion turbine facilities. All delegations are made in accordance with a corporate procedure, and each person is duly qualified in accordance with applicable statute and regulation. The delegations being made today are noted on Attachment 1. Each facility will submit a Department of Environmental Protection form 62-213.900(8) at a later date.

By copy of this letter, notification of this delegation is provided to individuals newly authorized to sign on behalf of the company. This letter supersedes and negates any previous correspondence relating to the responsible officials for these facilities. Delegations for Progress Energy facilities not referenced in this letter and provided to you previously are not changed.

Very truly yours,

Bruce M. Baldwin
Vice President – Combustion Turbine Operations

Attachment
C: Mr. Reginald D. Anderson
Mr. Ernie L. Bass
Mr. Paul V. Crimi
Mr. Martin J. Drango
Mr. William Dudley
Mr. Kris Edmondson
Mr. Wilson B. Hicks, Jr.
Mr. David R. Karp
Mr. J. Michael Kennedy
Mr. Leonard Kozlov (FL-DEP)
Mr. George Kerst
Mr. Mike W. Lentz
Mr. Dennis A. Merrick
Mr. Scott Sheplak (FL-DEP)
Mr. Roger B. Zirkle

Attachment 1
Progress Energy Florida Combustion Turbine
Title V Responsible Officials

Facility	Current RO: Plant Managers	Alternate: General Manager CT Operations	Alternate: Production Managers - CT	Alternate: DR if applicable
Avon Park	Kris Edmondson	Paul V. Crimi	William Dudley	
Bayboro	Mike W. Lentz	Paul V. Crimi	David R. Karp	
DeBary	Martin J. Drango	Paul V. Crimi	Reginald D. Anderson	J. Michael Kennedy
Higgins	Mike W. Lentz	Paul V. Crimi	David R. Karp	
Hines	Roger B. Zirkle	Paul V. Crimi	George Kerst	J. Michael Kennedy
Intercession City	Kris Edmondson	Paul V. Crimi	William Dudley	J. Michael Kennedy
Rio Pinar	Martin J. Drango	Paul V. Crimi	Reginald D. Anderson	
Tiger Bay	Roger B. Zirkle	Paul V. Crimi	Dennis A. Merrick	J. Michael Kennedy
Turner	Martin J. Drango	Paul V. Crimi	Reginald D. Anderson	
University of Florida Cogen	Wilson B. Hicks, Jr.	Paul V. Crimi	Ernie L. Bass	J. Michael Kennedy