Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

October 29, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Clayton A. Roesler
Division Environmental Specialist
Florida Gas Transmission Company
Post Office Box 945100
Maitland, Florida 32794 5100

Dear Mr. Roesler:

RE: Approval of Custom Fuel Monitoring Schedule
Florida Gas Transmission Company (FGT)
AC62-229319 and 1230034-002-AC, (PSD-FL-202), Station 15, Taylor County
AC09-229441 and 0170035-001-AC, Station 26, Citrus County
AC29-228821 and 0570438-002-AC, Station 30, Hillsborough County

This is in response to your request dated April 12,1996, regarding approval of FGT's proposed Custom Fuel Monitoring Schedule pursuant to 40 CFR 60, Subpart GG for the above mentioned turbines and sites. Attached please find EPA's approval of this request. The approved Custom Fuel Monitoring Schedule shall be attached to the above mentioned permits and shall become a part of each permit.

If you have any questions regarding this matter, please call Teresa Heron at (850) 921-9529 or David McNeal at (404)562-9102.

Sincerely,

A. A. Linero, P.E.

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

AAL/th/kt

Enclosure

cc: Jerry Campbell, EPCHC
Jerry Kissel, SWD
Chris Kirts, NED
Barry Andrews, ENSR

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.

Is your RETURN ADDRESS completed on the reverse side?

3. Article Addressed to:
Douglas Neeley, Chief
ART Branch
US EPA Region 4
61 Forsyth St.
Atlanta, GA 30303

4a. Article Number
Z 333 612 503

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

7. Date of Delivery: SEP 1 1998 9-17-98

5. Received By: *(Print Name)* Bruce Lake

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

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

PS Form **3811**, December 1994 102595-97-B-0179 Domestic Return Receipt

Thank you for using Return Receipt Service.

Z 333 612 503

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

Sent to: Doug Neeley	
Street & Number: EPA	
Post Office, State, & ZIP Code: Atlanta GA	
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 FGT 9-15-98	

PS Form **3800**, April 1995

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

September 11, 1998

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. R. Douglas Neeley, Chief
Air and Radiation Technology Branch
U. S. Environmental Protection Agency - Region 4
61 Forsyth Street
Atlanta, Georgia 30303

Re: Florida Gas Transmission Company
Custom Fuel Monitoring Schedule - Compressor Stations

Dear Mr. Neeley:

We request action on our attached letter dated December 23, 1997 regarding a custom fuel monitoring schedule for Florida Gas Transmission Company (FGT). We need to update the Department's ARMS database and to close out that permitting action.

It is possible that this one "fell through the cracks" since in some cases the applicants requested these actions directly from EPA. Also, we might have mailed it to your old address. In any case, applicants are now processing them through the state. We in-turn send them to EPA with the appropriate documentation for your review and approval (or denial). Most recent ones have been handled promptly.

If you have any questions regarding this matter, please call me or Teresa Heron at (850) 488-1344 or Clayton Roesler of Florida Gas Transmission Company at (407)875-5865.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/th

Enclosures

cc: Clayton Roesler, FGT

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

December 23, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. R. Douglas Neeley, Chief
Air and Radiation Technology Branch
Air, Pesticides and Toxics Management Division
100 Alabama Street S.W.
Atlanta, Georgia 30303-3104

Re: Florida Gas Transmission Company
Custom Fuel Monitoring Schedule - Compressor Stations

Dear Mr. Neely:

The Florida Department of Environmental Protection requests approval of custom fuel monitoring schedules for the above mentioned company. The proposed schedules and supporting data needed for approval of the request have been enclosed for your review. The requests are for combustion turbines located at FGT Compressor Stations 30, 26, and 15, located in Duval, Citrus, and Taylor Counties, respectively. These units are subject to 40 CFR 60 Subpart GG. Pursuant to 40 CFR 60.334(b) (2), the U.S. EPA Administrator has approval authority for the custom fuel monitoring schedule. Station 15 was also subjected to PSD review.

The Department recommends approval of FGT's request and notes that FGT is the main gas supplier in Florida. Other requesters for custom fuel monitoring schedules typically rely on FGT's data in complying with their own monitoring requirements. We are advising all applicants to submit their requests through the Department.

It is the Department understanding that this request was previously sent to EPA by Florida Gas Transmission (FGT) sometime in June or July 1996. However, we have no record of any actions taken on the request, which is why it is being re-submitted.

If you have any questions regarding this matter, please call me or Teresa Heron of this Department at (850) 488-1344 or Clayton Roesler of FGT at (407)875-5865.

Sincerely,

12/23

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/th/t

Enclosures

cc: Clayton Roesler, FGT

1230034-002-AC

Florida Gas Transmission Company

P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

April 12, 1996

CERTIFIED

Ms. Rita Felton
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B-200
Jacksonville, FL 32256-7577

Dear Ms. Felton:

Re: Florida Gas Transmission Company - Station 15
Turbine Compressor 1507, Air Permit No. AC62-229319

Florida Gas Transmission Company (FGT) requests approval for a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in the natural gas fuel for each of the referenced turbine units.

Pursuant to Specific Condition 13, FGT requests approval of a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in its fuel gas. The permitted gas turbine burns only highly regulated pipeline quality natural gas that contains negligible amounts of nitrogen and sulfur. The initial compliance tests (attached) show the nitrogen and sulfur concentrations in the gas to be much less than the respective permit limits. The nitrogen and sulfur content of the fuel gas, supplied through FGT's pipeline, has historically been and will remain relatively constant at levels far below those of regulatory interest.

If you have any questions or would like to arrange a meeting to discuss these changes, please call me at (407) 875-5816.

Sincerely,

Allan Weatherford
Division Environmental Specialist

c Glenn Sellars
Roy Smith
Norman Tedder

TABLE 2
Summary of Results
Unit No. 1507

Florida Gas Transmission Company
Compressor Station No. 15
6 miles N of Perry on C-361 in Taylor County, FL
Solar Mars Model 90S
Technicians: CDC, LJB, DLD

Test Number	15C-4	15C-5	15C-6		FDEP Permit Limits
Date	8/29/95	8/29/95	8/29/95		
Start Time	8:50	9:13	10:37		
Stop Time	9:00	10:21	11:50		
Turbine/Compressor Operation				*Averages*	
Power Turbine Speed (NPT, %)	94.6	94.2	93.3	*94.0*	
Gas Producer Speed (NGP, %)	100.9	100.8	100.5	*100.7*	
Estimated Horsepower (Solar Compressor Shaft, bhp)	11301	11326	11254	*11294*	11261*
Engine Compressor Discharge Pressure (PCD, psig)	180.6	179.4	176.3	*178.8*	
Combustor Air Inlet Temperature (T-1, °F)	84.0	85.9	88.5	*86.1*	
Power Turbine Exhaust Temperature (T-5, °F)	1290	1290	1291	*1290*	
Gas Compressor Suction Pressure (psig)	765.3	768.9	779.5	*771.2*	
Gas Compressor Suction Temperature (°F)	72.9	72.3	72.0	*72.4*	
Gas Compressor Discharge Pressure (psig)	1059.0	1065.8	1071.4	*1065.4*	
Gas Compressor Discharge Temperature (°F)	128.1	128.3	127.7	*128.0*	
Compressor Flow (MMSCFD)	580.3	574.0	572.2	*575.5*	
Turbine Fuel Data (Residue Gas)					
Fuel Heating Value (Btu/SCF, HHV)	1034	1034	1034	*1034*	
Fuel Specific Gravity	0.5840	0.5840	0.5840	*0.5840*	
O2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8674	8674	8674	*8674*	
CO2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1024	1024	1024	*1024*	
Total Sulfur in Fuel (grains Sulfur/100 SCF fuel)	0.059	0.059	0.059	*0.059*	10
Fuel Flow (MMSCFH)	0.0921	0.0915	0.0920	*0.0919*	0.1265
Heat Input (MMBtu/hr)	95.29	94.67	95.16	*95.04*	131.59
Ambient Conditions					
Atmospheric Presuure ("Hg)	29.82	29.84	29.86	*29.84*	
Temperature (°F): Dry bulb	79	80	82	*80*	
(°F): Wet bulb	74	76	72	*74*	
Humidity (lbs moisture/lb of air)	0.0166	0.0180	0.0138	*0.0161*	
Measured Emissions					
NOx (ppmv, dry basis)	23.9	24.0	23.4	*23.8*	
NOx (ppmv @ 15% O2)	27.5	27.7	27.2	*27.5*	42.0
NOx (ppmv @ 15% O2, ISO Day)	31.2	32.0	28.8	*30.7*	81.2†
CO (ppmv, dry basis)	0.9	1.1	1.3	*1.1*	
O2 (% volume, dry basis)	15.78	15.79	15.82	*15.80*	
CO2 (% volume, dry basis)	2.92	2.97	2.96	*2.95*	
Visible Emissions (% opacity)	0	0	0	*0*	10
Fo (fuel factor, range = 1.600-1.834 for NG)	1.75	1.72	1.72	*1.73*	
Stack Volumetric Flow Rates					
via Pitot Tube Traverse (SCFH, dry basis)	4.17E+06	4.02E+06	3.80E+06	*4.00E+06*	
via O2 "F-factor" (SCFH, dry basis)	3.37E+06	3.36E+06	3.40E+06	*3.38E+06*	
via CO2 "F-factor" (SCFH, dry basis)	3.34E+06	3.26E+06	3.29E+06	*3.30E+06*	
Calculated Emission Rates (via pitot tube)					
NOx (lbs/hr)	11.9	11.5	10.6	*11.3*	16.14
CO (lbs/hr)	0.27	0.32	0.36	*0.32*	11.71
SO2 (lbs/hr, Based on fuel flow and fuel sulfur)	0.016	0.015	0.016	*0.015*	3.61
NOx (tons/yr)	52.2	50.5	46.5	*49.7*	70.70
CO (tons/yr)	1.2	1.4	1.6	*1.4*	51.30
SO2 (tons/yr, Based on fuel flow and fuel sulfur)	0.068	0.068	0.068	*0.068*	15.83
NOx (g/bhp-hr)	0.48	0.46	0.43	*0.46*	0.58
CO (g/bhp-hr)	0.011	0.013	0.014	*0.013*	0.42

* 100% of permitted output at ambient temperature of 80°F
† EPA NSPS Performance Standard

Gas Fuel F Factor & Heating Value Calculation

Client Florida Gas Transmission Company
Sample ID pipeline natural gas (residue gas), St. 15
Time 16:02
Date 8/28/95

CALCULATION OF DENSITY AND HEATING VALUE @ 60°F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.3630	28.016	0.0744	0.00027	0.6045	0	0.00	0.0	0
CO2	0.7530	44.010	0.1170	0.00088	1.9719	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	95.8760	16.041	0.0424	0.04065	90.9870	23879	21726.77	1013.0	971.224
Ethane	2.3070	30.067	0.0803	0.00185	4.1464	22320	925.47	1792.0	41.3414
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.3970	44.092	0.1196	0.00047	1.0627	21661	230.20	2590.0	10.2823
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.0970	58.118	0.1582	0.00015	0.3435	21308	73.19	3363.0	3.26211
n-butane	0.0800	58.118	0.1582	0.00013	0.2833	21257	60.21	3370.0	2.696
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.0340	72.144	0.1904	0.00006	0.1449	21091	30.56	4008.0	1.36272
n-pentane	0.0210	72.144	0.1904	0.00004	0.0895	21052	18.84	4016.0	0.84336
n-hexane	0.0720	86.169	0.2274	0.00016	0.3665	20940	76.74	4762.0	3.42864
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density		0.04468	100.0000	Gross Heating Value		Gross Heating Value	
		Specific Gravity		0.58403		Btu/lb	23142	Btu/SCF	1034.4

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.36	10.1698			0.602268295	
CO2	44.010	0.272273	0	0.75	33.1395	0.534352898			1.42678
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	95.88	1537.9469	68.3093034	22.7697678		
Ethane	30.067	0.8	0.2	2.31	69.3646	3.286282746	0.82157069		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.40	17.5045	0.848157315	0.18847963		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.10	5.6374	0.276296178	0.0575802		
n-butane	58.118	0.82759	0.17247	0.08	4.6494	0.227873136	0.04748883		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.03	2.4529	0.121052399	0.02421106		
n-pentane	72.144	0.83333	0.16667	0.02	1.5150	0.074767658	0.01495389		
n-hexane	86.169	0.83721	0.16279	0.07	6.2042	0.307606285	0.05981203		
H2S	34.076	0	0.0586923	0.00	0.0000	0	0		
Totals				100.00000	1688.5843	73.98569201	23.98	0.602268295	1.42678

CALCULATED VALUES		
O2 F Factor (dry)	8674	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	10654	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	1980	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	18.59	volume % water in flue gas @ 0% excess air
CO2 F Factor	1024	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	11.81	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	1.77	EPA Method 3a Fo value
Fuel VOC % (non-C1)	6.57%	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	2.36%	non-methane non-ethane fuel VOC content

6 17 0035-001-AC

Florida Gas Transmission Company
P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

April 12, 1996

Mr. Clair Fancy
Florida Department of Environmental Protection
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Air Permit No. AC09-229441
Florida Gas Transmission Company - Station 26
Citrus County, Lecanto, Florida

Florida Gas Transmission Company (FGT) requests that certain modifications be made to the above referenced construction permit and also requests approval for a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in the natural gas.

The permitted unit is a minor source at a minor facility. Changes are requested to eliminate requirements that exceed those specified by rule without significantly impacting reasonable compliance oversight.

Specifically, FGT requests the following changes to the referenced permit:

Change Specific Condition 1 so that all emissions limiting standards are omitted except for NOx and SO2 standards. The standards should be consistent with the standards that are applicable to the source in NSPS (40CFR61) and should be expressed in the units defined in the standard rather than in pounds per hour (lbs/hr) or tons per year (TPY).

Change Specific Condition 2 to read: "Visible emissions shall not exceed 20% opacity."

Revise Specific Condition 8 so that the test requirements are limited to:
-Annual Testing: for visible emissions by Method 9
-Prior to Renewal Testing: for Nox by Methods 1,2,3A, and 20
NOTE: The initial tests, as currently specified in the permit, were completed and showed compliance with all permit limits. FGT is requesting the change to affect only the "annual" and "prior to renewal" testing requirements.

Additionally, pursuant to Specific Condition 13, FGT requests approval of a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in its fuel gas (a copy of this request has also been sent to Hillsborough County EPC for their consideration). The permitted gas turbine burns only highly regulated pipeline quality natural gas that contains negligible amounts of nitrogen and sulfur. The initial compliance tests (attached) show the nitrogen and sulfur concentrations in the gas to be much less than the respective permit limits. The nitrogen and sulfur content of the fuel gas, supplied through FGT's pipeline, has historically been and will remain relatively constant at levels far below those of regulatory interest.

If you have any questions or would like to arrange a meeting to discuss these changes, please call me at (407) 875-5816.

Sincerely,

Allan Weatherford
Division Environmental Specialist

c Charlie Thompson
Roy Smith
Mark Winder
John Ludlow
Eric Peterson, Hillsborough County EPC

Gas Fuel F Factor & Heating Value Calculation

Client: Florida Gas Transmission Company
Sample ID: pipeline natural gas (residue gas)
Time: 6:23
Date: 3/21/95

CALCULATION OF DENSITY AND HEATING VALUE @ 60 °F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.4930	28.016	0.0744	0.00037	0.8078	0	0.00	0.0	0
CO2	1.0030	44.010	0.1170	0.00117	2.5844	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	95.1330	16.041	0.0424	0.04034	88.8320	23879	21212.20	1013.0	963.697
Ethane	2.2510	30.067	0.0803	0.00181	3.9807	22320	888.50	1792.0	40.3379
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.5020	44.092	0.1196	0.00060	1.3222	21661	286.41	2590.0	13.0018
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.1490	58.118	0.1582	0.00024	0.5191	21308	110.61	3363.0	5.01087
n-butane	0.1490	58.118	0.1582	0.00024	0.5191	21257	110.35	3370.0	5.0213
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.1000	72.144	0.1904	0.00019	0.4193	21091	88.44	4008.0	4.008
n-pentane	0.1000	72.144	0.1904	0.00019	0.4193	21052	88.27	4016.0	4.016
n-hexane	0.1190	86.169	0.2274	0.00027	0.5960	20940	124.79	4762.0	5.66678
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density	0.04541		100.0000	Gross Heating Value		Gross Heating Value	
		Specific Gravity	0.59356			Btu/lb	22910	Btu/SCF	1040.8

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.49	13.8119			0.804982658	
CO2	44.010	0.272273	0	1.00	44.1420	0.70047131			1.87034
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	95.13	1526.0285	66.7048437	22.2349479		
Ethane	30.067	0.8	0.2	2.25	67.6808	3.15565165	0.78891291		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.50	22.1342	1.0554699	0.23454915		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.15	8.6596	0.41768188	0.08704503		
n-butane	58.118	0.82759	0.17247	0.15	8.6596	0.41768188	0.08704503		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.10	7.2144	0.3503892	0.07007952		
n-pentane	72.144	0.83333	0.16667	0.10	7.2144	0.3503892	0.07007952		
n-hexane	86.169	0.83721	0.16279	0.12	10.2541	0.50034078	0.09728799		
H2S	34.076	0	0.058692	0.00	0.0000	0	0		
Totals				99.99900	1715.7994	73.6529195	23.67	0.804982658	1.87034

CALCULATED VALUES		
O2 F Factor (dry)	8688	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	10662	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	1974	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	18.52	volume % water in flue gas @ 0% excess air
CO2 F Factor	1030	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	11.85	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	1.76	EPA Method 3a Fo value
Fuel VOC % (non-C1)	8.06%	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	3.98%	non-methane non-ethane fuel VOC content

TABLE 2: Summary of Results
Unit No. 2601

Company: Florida Gas Transmission Company
Plant: Compressor Station #26
Location: 2 miles NW of Lecanto in Citrus County
Technicians: CDC, LJB, LAB
Source: Solar Taurus Model 60S Solonox Turbine

Test Number	26C-1	26C-1*	26C-2	26C-3		
Date	3/21/95	3/21/95	3/21/95	3/21/95		
Start Time	9:01	9:01	11:22	13:00		FDEP
Stop Time	10:10	10:10	12:22	14:04		Permit
Turbine/Compressor Operation					*Averages*	Limits
Power Turbine Speed (%,NPT)	89.6	89.6	86.7	85.5	*87.3*	
Gas Producer Speed (%,NGP)	96.9	96.9	96.5	96.5	*96.6*	
Estimated Horsepower (bhp ISO Day, Solar program)	6439	6439	6149	6243	*6277*	6500
PCD Observed (psig)	134.7	134.7	131.0	131.1	*132.3*	
T-1 Temperature (°F)	72.7	72.7	78.0	78.3	*76.3*	
T-5 Temperature (°F)	1400	1400	1401	1400	*1400*	
Compressor Flow (MMSCFD)	446.7	446.7	473.0	466.7	*462.1*	
Gas Compressor Suction Pressure (psi)	808.5	808.5	833.7	871.1	*837.8*	
Gas Compressor Suction Temperature (°F)	63.9	63.9	63.3	63.3	*63.5*	
Gas Compressor Discharge Pressure (psi)	1027.7	1027.7	1038.5	1039.9	*1035.4*	
Gas Compressor Discharge Temperature (°F)	99.6	99.6	96.0	95.7	*97.1*	
Fuel Data (Residue Gas)						
Fuel Heating Value (Btu/SCF-HHV)	1041	1041	1041	1041	*1041*	
O2 "F-factor", based on fuel analysis	8688	8688	8688	8688	*8688*	
CO2 "F-factor", based on fuel analysis	1030	1030	1030	1030	*1030*	
Total Sulfur in Fuel (grains/100 SCF)	0.063	0.063	0.063	0.063	*0.063*	10
Fuel Flow (MMSCF/hr)	0.0510	0.0510	0.0498	0.0497	*0.0501*	0.0684
Heat Input (MMBtu/hr)	53.05	53.05	51.78	51.70	*52.18*	71.52
Ambient Conditions						
Temperature (°F, wet)	66	66	69	69	*68*	
(°F, dry)	74	74	80	80	*78*	
Atmospheric Pressure ("Hg, abs.)	29.89	29.89	29.87	29.84	*29.87*	
Humidity (lbs/lb of air)	0.0112	0.0112	0.0124	0.0124	*0.0120*	
Measured Emissions						
NOx (ppmv, dry)	24.1	22.0	22.5	23.5	*23.0*	
NOx (ppm @ 15% O2)	28.0	25.6	26.4	27.6	*26.9*	42.0
NOx (ppm @15% O2, ISO Day)	29.4	26.8	27.9	29.2	*28.4*	154.2†
CO (ppmv, dry)	6.7	6.7	5.6	4.8	*5.7*	
O2 (% volume, dry)	15.82	15.82	15.88	15.88	*15.86*	
CO2 (% volume, dry)	3.00	3.00	2.85	2.97	*2.94*	
Fo	1.69	1.69	1.76	1.69	*1.71*	
THC (ppmv, dry as Methane via M-25A)	0.95	0.95	0.30	0.13	*0.46*	
Visible Emissions (% Opacity)	0	0	0	0	*0*	10
Stack Volumetric Flow Rates						
via Pitot Tube Traverse (SCFH, dry)	2.04E+06	2.04E+06	2.02E+06	1.98E+06	*2.01E+06*	
via O2 "F-factor" (SCFH, dry)	1.90E+06	1.90E+06	1.87E+06	1.87E+06	*1.88E+06*	
via CO2 "F-factor" (SCFH, dry)	1.82E+06	1.82E+06	1.87E+06	1.79E+06	*1.83E+06*	
Mass Emissions (via EPA Methods 1-4)						
NOx (lbs/hr)	5.86	5.35	5.44	5.55	*5.53*	8.92
CO (lbs/hr)	0.99	0.99	0.82	0.69	*0.84*	6.46
THC (lbs/hr)	0.081	0.081	0.025	0.011	*0.039*	0.37 ¥
SO2 (lbs/hr, based on fuel flow and fuel sulfur)	0.0092	0.0092	0.0090	0.0089	*0.0090*	1.97
NOx (tons/yr)	25.7	23.4	23.8	24.3	*24.2*	39.1
CO (tons/yr)	4.34	4.34	3.61	3.02	*3.66*	28.29
THC (tons/yr)	0.35	0.35	0.11	0.05	*0.17*	1.62 ¥
SO2 (tons/yr, based on fuel flow and fuel sulfur)	0.040	0.040	0.039	0.039	*0.040*	8.62
NOx (g/bhp-hr)	0.413	0.377	0.401	0.403	*0.400*	0.62
CO (g/bhp-hr)	0.070	0.070	0.061	0.050	*0.060*	0.45
THC (g/bhp-hr)	0.0057	0.0057	0.0019	0.0008	*0.0028*	0.26 ¥

* Reports NOx recalibration value per EPA 40 CFR 60, Appendix A, Method 20, Section 6.2.3.
† EPA 40 CFR 60 Subpart GG NSPS requirement
¥ FDEP Permit limits are for non-methane Volatile Organic Compounds (VOC).

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 S. Seitz, 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

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 measurement 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 analysis 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.

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 SSCD 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

Florida Gas Transmission Company
P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

April 12, 1996

CERTIFIED

Mr. Clair Fancy
Florida Department of Environmental Protection
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Florida Gas Transmission Company - Station 30
Air Permit No. AC29-228821

Florida Gas Transmission Company (FGT) requests that certain modifications be made to the above referenced construction permit and also requests approval for a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in the natural gas.

The permitted unit is a minor source at a minor facility. Changes are requested to eliminate requirements that exceed those specified by rule without significantly impacting reasonable compliance oversight.

Specifically, FGT requests the following changes to the referenced permit:

Change Specific Condition 1 so that all emissions limiting standards are omitted except for NOx and SO2 standards. The standards should be consistent with the standards that are applicable to the source in NSPS (40CFR61) and should be expressed in the units defined in the standard rather than in pounds per hour (lbs/hr) or tons per year (TPY).

Change Specific Condition 2 to read: "Visible emissions shall not exceed 20% opacity."

Revise Specific Condition 8 so that the test requirements are limited to:
-Annual Testing: for visible emissions by Method 9
-Initial and Prior to Renewal Testing: for Nox by Methods 1,2,3A, and 20
NOTE: The initial tests, as currently specified in the permit, were completed and showed compliance with all permit limits. FGT is requesting the change to affect only the "annual" and "prior to renewal" testing requirements.

Additionally, pursuant to Specific Condition 13, FGT requests approval of a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in its fuel gas (a copy of this request has also been sent to Hillsborough County EPC for their consideration). The permitted gas turbine burns only highly regulated pipeline quality natural gas that contains negligible amounts of nitrogen and sulfur. The initial compliance tests (attached) show the nitrogen and sulfur concentrations in the gas to be much less than the respective permit limits. The nitrogen and sulfur content of the fuel gas, supplied through FGT's pipeline, has historically been and will remain relatively constant at levels far below those of regulatory interest.

If you have any questions or would like to arrange a meeting to discuss these changes, please call me at (407) 875-5816.

Sincerely,

Allan Weatherford
Division Environmental Specialist

c Charlie Thompson
Roy Smith
Curt Gavin
Ray Glass
Eric Peterson, Hillsborough County EPC

Table 2
Summary of Results Unit No. 3003

Company: Florida Gas Transmission Co.
Plant: Compressor Station No. 30
Location: 4 miles NE of Plant City
Hillsborough Co., FL on SR 582
Source: Solar Saturn T-1001S-312F
Technicians: CDC, LJB, DD

Test Number	30C-1	30C-2	30C-3		
Date	7/25/95	7/25/95	7/25/95		
Start Time	8:30	10:10	11:35		FDEP Permit Limits
Stop Time	9:44	11:10	12:35		
Turbine/Compressor Operation				Averages	
Power Turbine Speed (%, NPT)	80.9	79.9	80.5	80.4	
Gas Producer Speed (%, NGP)	96.8	95.9	96.0	96.2	
Horsepower (site bhp, via FGT cmprssr thruput calc.)	1057	1009.4	1010	1025	
PCD Observed (psig)	56.3	53.9	53.4	54.5	
Combustor Air Inlet Temperature (T-1, °F)	81.0	92.6	93.3	89.0	
Turbine Exhaust Stack Temperature (T-7, °F)	883	888	889	887	
Gas Compressor Suction Pressure (psig)	745.6	732.0	705.1	727.6	
Gas Compressor Suction Temperature (°F)	81.0	81.0	81.0	81.0	
Gas Compressor Discharge Pressure (psig)	917.6	898.6	867.3	894.5	
Gas Compressor Discharge Temperature (°F)	110.0	110.0	110.0	110.0	
Compressor Flow (MMSCFD)	596.1	603.0	613.0	604.0	
Turbine Fuel Data (Residue Gas)					
Fuel Heating Value (Btu/SCF, Gross)	1032	1032	1032	1032	
Fuel Specific Gravity	0.5838	0.5838	0.5838	0.5838	
O2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8676	8676	8676	8676	
CO2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1024	1024	1024	1024	
Total Sulfur in Fuel (grains Sulfur/100 SCF fuel)	0.088	0.088	0.088	0.088	10
Fuel Flow (MMSCFH)	0.0107	0.0107	0.0107	0.0107	0.0156
Heat Input (MMBtu/hr)	11.01	11.05	11.07	11.04	15.76
Brake-specific Fuel Consumption (Btu/bhp-hr)	10418	10945	10957	10773	
Ambient Conditions					
Atmospheric Presuure ("Hg)	29.89	29.92	29.93	29.91	
Temperature (°F): Dry bulb	80.5	88.5	90	86	
(°F): Wet bulb	79.3	79.5	82	80	
Humidity (lbs moisture/lb of air)	0.0208	0.0191	0.0207	0.0202	
Measured Emissions					
NOx (ppmv, dry basis)	30.3	30.7	29.9	30.3	
NOx (ppmv @ 15% O2)	44.1	44.9	43.7	44.3	
NOx (ppmv @15% O2, ISO Day)	54.6	52.6	52.5	53.2	150†
CO (ppmv, dry basis)	40.2	41.3	42.0	41.2	
O2 (% volume, dry basis)	16.85	16.87	16.86	16.86	
CO2 (% volume, dry basis)	2.28	2.37	2.24	2.30	
Visible Emissions (% opacity)	0	0	0	0	10
Fo (fuel factor, range = 1.600-1.834 for NG)	1.78	1.70	1.80	1.76	
Stack Volumetric Flow Rates					
via Pitot Tube Traverse (SCFH, dry basis)	5.19E+05	5.11E+05	5.01E+05	5.11E+05	
via O2 "F-factor" (SCFH, dry basis)	4.93E+05	4.97E+05	4.97E+05	4.96E+05	
via CO2 "F-factor" (SCFH, dry basis)	4.95E+05	4.77E+05	5.06E+05	4.93E+05	
Calculated Emission Rates (via pitot tube)					
NOx (lbs/hr)	1.88	1.88	1.79	1.85	3.95
CO (lbs/hr)	1.52	1.54	1.53	1.53	5.88
SO2 (lbs/hr, Based on fuel flow and fuel sulfur)	0.003	0.003	0.003	0.003	0.44
NOx (tons/yr)	8.2	8.2	7.8	8.1	17.30
CO (tons/yr)	6.7	6.7	6.7	6.7	25.75
SO2 (tons/yr, Based on fuel flow and fuel sulfur)	0.012	0.012	0.012	0.012	1.94
NOx (g/bhp-hr)	0.81	0.84	0.80	0.82	1.49
CO (g/bhp-hr)	0.65	0.69	0.69	0.68	2.22

† Sub part GG, NSPS NOx standard

Gas Fuel F Factor & Heating Value Calculation

Client: Florida Gas Transmission Company 50
Sample ID: pipeline natural gas (residue gas)
Time: 6:23
Date: 7/25/95

CALCULATION OF DENSITY AND HEATING VALUE @ 60°F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.3840	28.016	0.0744	0.00029	0.6397	0	0.00	0.0	0
CO2	0.8050	44.010	0.1170	0.00094	2.1090	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	95.8620	16.041	0.0424	0.04065	91.0145	23879	21733.35	1013.0	971.082
Ethane	2.3000	30.067	0.0803	0.00185	4.1356	22320	923.07	1792.0	41.216
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.3750	44.092	0.1196	0.00045	1.0043	21661	217.54	2590.0	9.7125
Propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.0900	58.118	0.1582	0.00014	0.3188	21308	67.93	3363.0	3.0267
n-butane	0.0720	58.118	0.1582	0.00011	0.2551	21257	54.22	3370.0	2.4264
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.0320	72.144	0.1904	0.00006	0.1364	21091	28.77	4008.0	1.28256
n-pentane	0.0190	72.144	0.1904	0.00004	0.0810	21052	17.05	4016.0	0.76304
n-hexane	0.0600	86.169	0.2274	0.00014	0.3055	20940	63.98	4762.0	2.8572
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
Total	100.00	Average Density		0.04466	100.0000	Gross Heating Value		Gross Heating Value	
		Specific Gravity		0.58377		Btu/lb	23106	Btu/SCF	1032.4

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.38	10.7581			0.637383014	
CO2	44.010	0.272273	0	0.81	35.4281	0.57149832			1.52597
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	95.86	1537.7223	68.32856815	22.7761894		
Ethane	30.067	0.8	0.2	2.30	69.1541	3.277713975	0.81942849		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.38	16.5345	0.801499135	0.17811114		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.09	5.2306	0.256467027	0.0534478		
n-butane	58.118	0.82759	0.17247	0.07	4.1845	0.205173621	0.04275824		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.03	2.3086	0.113980444	0.02279664		
n-pentane	72.144	0.83333	0.16667	0.02	1.3707	0.067675889	0.0135355		
n-hexane	86.169	0.83721	0.16279	0.06	5.1701	0.256448311	0.04986469		
H2S	34.076	0	0.058692	0.00	0.0000	0	0		
Totals				99.99900	1687.8617	73.87902487	23.96	0.637383014	1.52597

CALCULATED VALUES		
O2 F Factor (dry)	8676	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	10657	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	1981	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	18.59	volume % water in flue gas @ 0% excess air
CO2 F Factor	1024	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	11.80	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	1.77	EPA Method 3a Fo value
Fuel VOC % (non-C1)	6.38%	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	2.17%	non-methane non-ethane fuel VOC content

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

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   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.

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

Attachment

cc: John Cronshaw
George Walsh
Robert Ajax
Earl Salo

Clayton A. Roesler

Florida Gas Transmission

Fax

To:	Jim Pennington	**From:**	Clayton A. Roesler
Fax:	850-922-6979	**Pages:**	1 + Cover
Phone:	850-921-9515	**Date:**	August 18, 1998
Re:	Request for Emergency Order	**CC:**	

- **Comments:** Print copy is in the mail.

Thanks.

~~AC~~, 8/18/98
FYI & File.
Jim P.
~~Teresa~~ T - H
② Kim - Put in FGT/Taylor Co Station 15 file.
ae

Florida Gas Transmission Company
P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

August 18, 1998

Mr. Jim Pennington
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blairstone Road
Tallahassee, Florida 32399-2400

Dear Mr. Pennington:

Re: Request for Emergency Order
Ambient Uprating at Florida Compressor Stations

Florida Gas Transmission Company (FGT) requests an Emergency Order allowing FGT to Ambient Uprate various compressor units at FGT compressors stations in Florida. Ambient Uprating capability is requested on the following units:

Unit 1206 at Compressor Station 12 in Munson, Florida
Unit 1306 at Compressor Station 13 in Caryville, Florida
Unit 1406 at Compressor Station 14 in Quincy, Florida
Unit 1606 at Compressor Station 16 in Brooker, Florida
Unit 1705 at Compressor Station 17 in Silver Springs, Florida
Unit 1805 at Compressor Station 18 in Orlando, Florida
Units 1901 and 1902 at Compressor Station 19 in Melbourne, Florida
Unit 2005 at Compressor Station 20 in Ft. Pierce, Florida

The request for ambient uprating capability on these engines is due to an explosion caused by lightning at FGT Compressor Station 15 in Perry, Florida. The explosion disabled the pipeline and compressor station, temporarily stopping gas flow to Central and Southern Florida. This request for the Emergency Order for ambient uprating is to compensate for gas compression loss at FGT Compressor Station 15 in Perry, Florida. We are working diligently to restore FGT's Perry Compressor Station.

We appreciate your assistance with this temporary emergency order. If you have any questions or need any additional information, please contact me at 407-875-5846.

Sincerely,

Clayton A. Roesler

Clayton A. Roesler
Division Environmental Specialist

cc: Norman Tedder
Glenn Sellars
Mike Teal
Allan Weatherford

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In re:

EMERGENCY AUTHORIZATION FOR OPERATION, REPAIRS, REPLACEMENT, RESTORATION, AND CERTAIN OTHER MEASURES MADE NECESSARY BY THE AUGUST 14, 1998, EXPLOSION AT FLORIDA GAS TRANSMISSION COMPANY'S PERRY, TAYLOR COUNTY STATION NO. 15

OGC CASE NO. 98-2320

_____/

EMERGENCY FINAL ORDER

Under Section 120.569(2)(l) of the Florida Statutes, the State of Florida Department of Environmental Protection (the Department) enters the following Emergency Final Order, including findings of fact and conclusions of law, in response to the destruction wrought by the August 14, 1998, explosion (the explosion) at Florida Gas Transmission Company's Perry, Taylor County, Station 15.

FINDINGS OF FACT

1. Florida Gas Transmission Company is an interstate natural-gas system. Its approximately 4,900 miles of pipeline move gas from South Texas across the Gulf Coast into Florida, terminating in Miami. The system's customers include industries, commercial establishments, electric utilities, and municipalities throughout Florida.

2. On August 14, 1998, an explosion reportedly caused by a lightning strike occurred at the Florida Gas Transmission Company's Perry, Taylor County, Station 15. The explosion curtailed natural gas supply to multiple counties south of Perry, Florida. Some commercial establishments, such as restaurants, are unable to operate. Industries, such as Buckeye Florida, and electric utilities, such as Florida Power Corporation and Florida Power and Light Company, are required to use higher-polluting fuels. As a result, unless natural gas supply is immediately restored, emissions of nitrogen oxides, particulate matter, and sulfur dioxides are expected to increase significantly.

3. Florida Gas Transmission Company's Station 15 will require thirty days to complete necessary repairs. Natural gas supply to Central and Southern Florida can be restored immediately only by implementing an ambient upgrade at Station 12, Unit 1206, Santa Rosa County; Station 13, Unit 1306, Washington County; Station 14, Unit 1406, Gadsden County; Station 16, Unit 1606, Bradford County; Station 17, Unit 1705, Marion County; Station 18, Unit 1805, Orange County; Station 19, Units 1901 and 1902, Brevard County; and Station 20, Unit 2005, St. Lucie County.

4. The Department finds that the explosion has created a state of emergency threatening the public health, safety and welfare throughout those areas of Florida

affected by the curtailment of natural gas supply because the use of fuels other than natural gas will cause an increase in the emissions of air pollutants known to be associated with human health problems.

5. The Department finds that an emergency final order is required to address the need for quick action to avoid the unnecessary burning of fuels causing increased emissions.

CONCLUSIONS OF LAW

1. Section 120.569(2)(l) of the Florida Statutes gives the Department the authority to issue an emergency final order if as agency head, I find that an immediate danger to the public health, safety or welfare so requires and the order recites with particularity the facts underlying that conclusion.

2. Based on the findings recited above, I find and conclude that the emergency caused by the explosion requires an immediate order of the Department to protect the public health, safety and welfare.

THEREFORE, IT IS ORDERED:

1. Florida Gas Transmission Company may increase the horsepower and unit speed of its Phase II Clean Burn Units by implementing an ambient upgrade at Station 12, Unit 1206, Santa Rosa County; Station 13, Unit 1306, Washington County; Station 14, Unit 1406, Gadsden County; Station 16, Unit 1606, Bradford

County; Station 17, Unit 1705, Marion County; Station 18, Unit 1805, Orange County; Station 19, Units 1901 and 1902, Brevard County; and Station 20, Unit 2005, St. Lucie County. This Order does not allow Florida Gas Transmission Company to exceed its permitted air emission limits for the aforementioned units or at any of its other units. Emissions of nitrogen oxides, particulate matter, and sulfur dioxide must remain within the permitted limits for these units.

2. Florida Gas Transmission Company is authorized to repair Station 15 at Perry, Taylor County, Florida, to the same capacity and configuration as was permitted by the Department prior to the explosion.

3. The Department issues this Emergency Final Order solely to address the emergency created by the explosion. This order shall not be construed to authorize any activity within the jurisdiction of the Department except in accordance with the express terms of this order. This order will allow the company to continue to provide clean natural gas to its customers and thereby avoid the use of more polluting fuels.

4. Nothing in this order shall eliminate the necessity for obtaining any other federal, state, or local permits or other authorizations that may be required.

5. This Emergency Final Order shall take effect immediately and expire in thirty days from the date of execution set forth below, unless modified or extended by further order.

NOTICE OF RIGHTS

Any party adversely affected by this Emergency Final Order is entitled to judicial review under Section 120.68 of the Florida Statutes. The Florida Rules of Appellate Procedure govern the review proceedings. Such proceedings are commenced by filing one copy of a notice of appeal with the Agency Clerk of the Department of Environmental Protection and a second copy, accompanied by filing fees prescribed by law, with the First District Court of Appeal or with the district court of appeal in the appellate district in which the party resides. The notice of appeal must be filed within thirty days of rendition of the order to be reviewed.

DONE AND ORDERED on this 18th day of August 1998 in Tallahassee, Leon County, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

for Virginia B. Wetherell
Secretary

3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000
Telephone: 850/488-1554

Clerk Stamp

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

Heather Chapman 8/18/98
Clerk Date

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this EMERGENCY FINAL ORDER was sent by facsimile to Florida Gas Transmission Company at (850) 584-4816 and (407) 875-5896 on August 18, 1998, and sent by U.S. Mail* or interoffice mail before the close of business on August 18, 1998, to the persons listed:

* Clayton A. Roesler
Florida Gas Transmission Company
Post Office Box 945100
Maitland, FL 32794-5100

* Marie Driscoll
Orange County EPD
2002 E. Michigan Street
Orlando, FL 32806

Clair H. Fancy, Bureau of Air Regulation, DEP
Ed Middleswart, NW District, DEP
Chris Kirts, NE District, DEP
Len Kozlov, Central District, DEP
Isidore Goldman, SE District, DEP

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Linda K. Reel

LINDA K. REEL
Assistant General Counsel
Florida Bar No. 30716

3900 Commonwealth Blvd., MS 35
Tallahassee, FL 32399-3000
Telephone: (850) 488-9314

Florida Gas Transmission Company

P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

March 31, 1998

Mr. Clair Fancy
Florida Department of Environmental Protection
Bureau of Air Quality
2600 Blair Stone road
Tallahassee, Florida 32399-2400

Reference: Facility ID No.: 1230034
FGT Compressor Station No. 15, Taylor County
Turbine Unit 1507

Dear Mr. Fancy

Subject: Additional Replacement of Turbine 1507

Florida Gas Transmission Company (FGT) must again replace the Solar Turbines, Inc., (Solar) Mars turbine (Emission Unit 1507) at Compressor Station No. 15 due to mechanical problems with the new unit.

The original Solar T-12000 turbine was replaced recently with a new Solar Model T-13000 that was de-rated to match the rating and emissions of the original T-12000 turbine. The new de-rated T-13000 unit, however, had NO_x emissions that were reduced to 25 ppmv from the 42 ppmv of the original T-12000 unit. This was required by Specific Condition No. 1 of the original PSD Permit (PSD-FL-202). The de-rated T-13000 was installed and tested according to the requirements of 40 CFR 60 Subpart GG.

This de-rated T-13000 unit must be replaced due to mechanical problems with the turbine's bearings. Solar intends to replace the currently installed de-rated T-13000 with an identical unit. This new replacement unit will have the same rating and emissions guarantees as the first replacement, including a NO_x emission rate of 25 ppmv.

This situation was discussed recently with Mr. Alan Linero and Ms. Theresa Heron of your office, and both were of the opinion that there was no need to submit a new permit application in order to substitute the new de-rated T-13000 for the first de-rated T-13000. He also indicated that new emissions testing would be required to meet the requirement of 40 CFR 60 Subpart GG.

Facility ID No.: 1230034
FGT Compressor Station No. 15, Taylor County
March 31, 1998

This letter is being submitted to notify the Florida Department of Environmental Protection of FGT's intent to replace this unit and to confirm that no new application is required. FGT will perform emissions testing of the new unit within 60 days of installation as required by 40 CFR 60 subpart GG.

Any questions or need for additional information should be directed to Clay Roesler at (407) 875-5865. Thank you for your attention to this matter.

Sincerely,

Clayton A. Roesler

Clayton A. Roesler
Division Environmental Specialist

cc: Mr. Christopher L. Kirts, P.E., District Air Program Administrator, Northeast District, Florida Department of Environmental Protection, 7825 Bay Meadows Way, Suite B200, Jacksonville, Florida 32256-7590

Dr. V. Duane Pierce, Air Quality Management Consulting Services

Team Environmentalist, FGT Perry Compressor Station No. 15, Taylor County

cc: J. Heron, BAR

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

October 15, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Clayton Roesler
Division Environmental Specialist
Florida Gas Transmission Company
P.O. Box 945100
Maitland, Florida 32794-5100

Re: Florida Gas Transmission Gas Turbines Permits
EPA Approval of Custom Fuel Monitoring Schedule
Station 30: 0570438-002-AC
Station 26: 0170035-001-AC
Station 15: 1230034-002-AC

Dear Mr. Roesler:

This letter is a reminder for you to send the Bureau of Air Regulation, the EPA Custom Fuel Monitoring Schedule approval for the above referenced gas turbines at the above mentioned FGT stations. If this request for approval has not been granted by EPA, please let us know.

As Teresa Heron has mentioned to you in previous telephone conversations, we need that information in order to update our ARMS database.

If you have any questions regarding this matter, please call Teresa Heron at (904) 488-1344.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/th/t

P 265 659 471

no green card 7/98

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Christa Roesler	
Street & Number FGT	
Post Office, State, & ZIP Code Plant City, FL	
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 Sat. 30 11 26 11 15	10-15-97

PS Form **3800**, April 1995

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 5, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Clayton Roesler
Division Environmental Specialist
Florida Gas Transmission Company
P.O. Box 945100
Maitland, Florida 32794-5100

Re: Florida Gas Transmission Permit Modifications
1230034-004-AC, (PSD-FL-202), Station 15, Taylor County
0990333-003-AC, Station 21, Palm Beach County
0170035-003-AC, Station 26, Citrus County
0570438-004-AC, Station 30, Hillsborough County

Dear Mr. Roesler:

This letter is to confirm your April 9, 1997 telephone conversation with Ms. Teresa Heron, concerning your letter dated April 2, 1997. Your letter essentially requested treatment of turbine replacements as routine replacements not requiring construction permits or modifications. Based on your observations, the turbines have been lasting only approximately 5000 hours or so making their replacement routine rather than life extension projects or modifications subject to construction permitting.

It was our understanding that only the new (Phase III) turbines were unreliable to the extent that routine (possibly annual) replacement is foreseen. However it is not clear that the replacement is just for the gas turbines permitted during Phase III that are defective. Your request implies all existing gas turbines in the Florida Gas Transmission system. Be advised that a replacement of an old unit (pre- NSPS) for a new unit will have to be accomplished by the permitting process. New units will be subject to 40 CFR 60, Subpart GG.

Based on our review of your request the following information is needed:

Provide reasonable assurance (e.g. a letter from the manufacturer of the turbine) that will indicate the limited life of the turbines and the need of routine repair, maintenance, or replacement for the affected turbines. Identify those FGT units that would be affected.

Submit a table identifying for both the existing and the replacement unit: the manufacturer, model number, serial number, capacity (bhp) and the allowable emissions levels.

Pursuant to Rule 62-4.050 F.A.C., please submit the above requested information under a professional engineer seal. This is required to provide reasonable assurance that the units to be replaced are rated at the same capacity (brake horsepower) or less than the existing units and that the emissions levels will not exceed those of the already permitted turbine for that site or otherwise contravene a Department rule or permit condition.

Please direct a copy of your response to each of the individuals listed below. If you have any questions regarding this matter, please call Teresa Heron at (904) 488-1344.

Sincerely,

5/5

A. A. Linero, P.E. Administrator
New Source Review Section

AAL/th/t

cc: Jerry Campbell, EPCHC
Jerry Kissel, SWD
Jeff Koerner, PBCPHU
Bob Leetch, NED

P 265 659 204

no green card 7/98

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Clayton Boesler	
Street & Number Fla. Gas Trans.	
Post Office, State & ZIP Code Maitland, Fl	
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 stat. 15 21 26 30	5-6-97

PS Form **3800**, April 1995

1230034-002-AC

Department of Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

December 23, 1997

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. R. Douglas Neeley, Chief
Air and Radiation Technology Branch
Air, Pesticides and Toxics Management Division
100 Alabama Street S.W.
Atlanta, Georgia 30303-3104

Re: Florida Gas Transmission Company
Custom Fuel Monitoring Schedule - Compressor Stations

Dear Mr. Neely:

The Florida Department of Environmental Protection requests approval of custom fuel monitoring schedules for the above mentioned company. The proposed schedules and supporting data needed for approval of the request have been enclosed for your review. The requests are for combustion turbines located at FGT Compressor Stations 30, 26, and 15, located in Duval, Citrus, and Taylor Counties, respectively. These units are subject to 40 CFR 60 Subpart GG. Pursuant to 40 CFR 60.334(b) (2), the U.S. EPA Administrator has approval authority for the custom fuel monitoring schedule. Station 15 was also subjected to PSD review.

The Department recommends approval of FGT's request and notes that FGT is the main gas supplier in Florida. Other requesters for custom fuel monitoring schedules typically rely on FGT's data in complying with their own monitoring requirements. We are advising all applicants to submit their requests through the Department.

It is the Department understanding that this request was previously sent to EPA by Florida Gas Transmission (FGT) sometime in June or July 1996. However, we have no record of any actions taken on the request, which is why it is being re-submitted.

If you have any questions regarding this matter, please call me or Teresa Heron of this Department at (850) 488-1344 or Clayton Roesler of FGT at (407)875-5865.

Sincerely,

A. A. Linero 12/23

A. A. Linero, P.E.
Administrator
New Source Review Section

AAL/th/t

Enclosures

cc: Clayton Roesler, FGT

P 265 659 273

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

Sent to Doug Neely	
Street & Number EPA	
Post Office, State, & ZIP Code Atlanta GA	
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 12-23-97 FGT Comp. Station 30, 26, 15	

PS Form **3800**, April 1995

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. R. Douglas Neely
US EPA - Region IV
Air Pest. & Toxics Mgmt.
61 Forsyth St.
Atlanta GA 30303-8104

4a. Article Number P 265 659 273

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

7. Date of Delivery 12-29-97

5. Received By: *(Print Name)*

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

6. Signature: *(Addressee or Agent)*
X [signature]

PS Form **3811**, December 1994 Domestic Return Receipt

Thank you for using Return Receipt Service.

1230034-002-AC

Florida Gas Transmission Company

P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

April 12, 1996

CERTIFIED

Ms. Rita Felton
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B-200
Jacksonville, FL 32256-7577

Dear Ms. Felton:

Re: Florida Gas Transmission Company - Station 15
Turbine Compressor 1507, Air Permit No. AC62-229319

Florida Gas Transmission Company (FGT) requests approval for a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in the natural gas fuel for each of the referenced turbine units.

Pursuant to Specific Condition 13, FGT requests approval of a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in its fuel gas. The permitted gas turbine burns only highly regulated pipeline quality natural gas that contains negligible amounts of nitrogen and sulfur. The initial compliance tests (attached) show the nitrogen and sulfur concentrations in the gas to be much less than the respective permit limits. The nitrogen and sulfur content of the fuel gas, supplied through FGT's pipeline, has historically been and will remain relatively constant at levels far below those of regulatory interest.

If you have any questions or would like to arrange a meeting to discuss these changes, please call me at (407) 875-5816.

Sincerely,

Allan Weatherford
Division Environmental Specialist

c Glenn Sellars
Roy Smith
Norman Tedder

TABLE 2
Summary of Results
Unit No. 1507

Florida Gas Transmission Company
Compressor Station No. 15
6 miles N of Perry on C-361 in Taylor County, FL
Solar Mars Model 90S
Technicians: CDC, LJB, DLD

Test Number	15C-4	15C-5	15C-6		FDEP Permit Limits
Date	8/29/95	8/29/95	8/29/95		
Start Time	8:50	9:13	10:37		
Stop Time	9:00	10:21	11:50		
Turbine/Compressor Operation				*Averages*	
Power Turbine Speed (NPT, %)	94.6	94.2	93.3	*94.0*	
Gas Producer Speed (NGP, %)	100.9	100.8	100.5	*100.7*	
Estimated Horsepower (Solar Compressor Shaft, bhp)	11301	11326	11254	*11294*	11261*
Engine Compressor Discharge Pressure (PCD, psig)	180.6	179.4	176.3	*178.8*	
Combustor Air Inlet Temperature (T-1, °F)	84.0	85.9	88.5	*86.1*	
Power Turbine Exhaust Temperature (T-5, °F)	1290	1290	1291	*1290*	
Gas Compressor Suction Pressure (psig)	765.3	768.9	779.5	*771.2*	
Gas Compressor Suction Temperature (°F)	72.9	72.3	72.0	*72.4*	
Gas Compressor Discharge Pressure (psig)	1059.0	1065.8	1071.4	*1065.4*	
Gas Compressor Discharge Temperature (°F)	128.1	128.3	127.7	*128.0*	
Compressor Flow (MMSCFD)	580.3	574.0	572.2	*575.5*	
Turbine Fuel Data (Residue Gas)					
Fuel Heating Value (Btu/SCF, HHV)	1034	1034	1034	*1034*	
Fuel Specific Gravity	0.5840	0.5840	0.5840	*0.5840*	
O2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8674	8674	8674	*8674*	
CO2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1024	1024	1024	*1024*	
Total Sulfur in Fuel (grains Sulfur/100 SCF fuel)	0.059	0.059	0.059	*0.059*	10
Fuel Flow (MMSCFH)	0.0921	0.0915	0.0920	*0.0919*	0.1265
Heat Input (MMBtu/hr)	95.29	94.67	95.16	*95.04*	131.59
Ambient Conditions					
Atmospheric Presuure ("Hg)	29.82	29.84	29.86	*29.84*	
Temperature (°F): Dry bulb	79	80	82	*80*	
(°F): Wet bulb	74	76	72	*74*	
Humidity (lbs moisture/lb of air)	0.0166	0.0180	0.0138	*0.0161*	
Measured Emissions					
NOx (ppmv, dry basis)	23.9	24.0	23.4	*23.8*	
NOx (ppmv @ 15% O2)	27.5	27.7	27.2	*27.5*	42.0
NOx (ppmv @ 15% O2, ISO Day)	31.2	32.0	28.8	*30.7*	81.2†
CO (ppmv, dry basis)	0.9	1.1	1.3	*1.1*	
O2 (% volume, dry basis)	15.78	15.79	15.82	*15.80*	
CO2 (% volume, dry basis)	2.92	2.97	2.96	*2.95*	
Visible Emissions (% opacity)	0	0	0	*0*	10
Fo (fuel factor, range = 1.600-1.834 for NG)	1.75	1.72	1.72	*1.73*	
Stack Volumetric Flow Rates					
via Pitot Tube Traverse (SCFH, dry basis)	4.17E+06	4.02E+06	3.80E+06	*4.00E+06*	
via O2 "F-factor" (SCFH, dry basis)	3.37E+06	3.36E+06	3.40E+06	*3.38E+06*	
via CO2 "F-factor" (SCFH, dry basis)	3.34E+06	3.26E+06	3.29E+06	*3.30E+06*	
Calculated Emission Rates (via pitot tube)					
NOx (lbs/hr)	11.9	11.5	10.6	*11.3*	16.14
CO (lbs/hr)	0.27	0.32	0.36	*0.32*	11.71
SO2 (lbs/hr, Based on fuel flow and fuel sulfur)	0.016	0.015	0.016	*0.015*	3.61
NOx (tons/yr)	52.2	50.5	46.5	*49.7*	70.70
CO (tons/yr)	1.2	1.4	1.6	*1.4*	51.30
SO2 (tons/yr, Based on fuel flow and fuel sulfur)	0.068	0.068	0.068	*0.068*	15.83
NOx (g/bhp-hr)	0.48	0.46	0.43	*0.46*	0.58
CO (g/bhp-hr)	0.011	0.013	0.014	*0.013*	0.42

* 100% of permitted output at ambient temperature of 80°F
† EPA NSPS Performance Standard

Gas Fuel F Factor & Heating Value Calculation

Client Florida Gas Transmission Company
Sample ID pipeline natural gas (residue gas), St. 15
Time 16:02
Date 8/28/95

CALCULATION OF DENSITY AND HEATING VALUE @ 60°F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.3630	28.016	0.0744	0.00027	0.6045	0	0.00	0.0	0
CO2	0.7530	44.010	0.1170	0.00088	1.9719	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	95.8760	16.041	0.0424	0.04065	90.9870	23879	21726.77	1013.0	971.224
Ethane	2.3070	30.067	0.0803	0.00185	4.1464	22320	925.47	1792.0	41.3414
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.3970	44.092	0.1196	0.00047	1.0627	21661	230.20	2590.0	10.2823
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.0970	58.118	0.1582	0.00015	0.3435	21308	73.19	3363.0	3.26211
n-butane	0.0800	58.118	0.1582	0.00013	0.2833	21257	60.21	3370.0	2.696
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.0340	72.144	0.1904	0.00006	0.1449	21091	30.56	4008.0	1.36272
n-pentane	0.0210	72.144	0.1904	0.00004	0.0895	21052	18.84	4016.0	0.84336
n-hexane	0.0720	86.169	0.2274	0.00016	0.3665	20940	76.74	4762.0	3.42864
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density		0.04468	100.0000	Gross Heating Value		Gross Heating Value	
		Specific Gravity		0.58403		Btu/lb	23142	Btu/SCF	1034.4

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.36	10.1698			0.602268295	
CO2	44.010	0.272273	0	0.75	33.1395	0.534352898			1.42678
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	95.88	1537.9469	68.3093034	22.7697678		
Ethane	30.067	0.8	0.2	2.31	69.3646	3.286282746	0.82157069		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.40	17.5045	0.848157315	0.18847963		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.10	5.6374	0.276296178	0.0575802		
n-butane	58.118	0.82759	0.17247	0.08	4.6494	0.227873136	0.04748883		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.03	2.4529	0.121052399	0.02421106		
n-pentane	72.144	0.83333	0.16667	0.02	1.5150	0.074767658	0.01495389		
n-hexane	86.169	0.83721	0.16279	0.07	6.2042	0.307606285	0.05981203		
H2S	34.076	0	0.0586923	0.00	0.0000	0	0		
Totals				100.00000	1688.5843	73.98569201	23.98	0.602268295	1.42678

CALCULATED VALUES		
O2 F Factor (dry)	8674	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	10654	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	1980	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	18.59	volume % water in flue gas @ 0% excess air
CO2 F Factor	1024	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	11.81	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	1.77	EPA Method 3a Fo value
Fuel VOC % (non-C1)	6.57%	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	2.36%	non-methane non-ethane fuel VOC content

6 1 0035-001-AC

Florida Gas Transmission Company

P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

April 12, 1996

Mr. Clair Fancy
Florida Department of Environmental Protection
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Air Permit No. AC09-229441
Florida Gas Transmission Company - Station 26
Citrus County, Lecanto, Florida

Florida Gas Transmission Company (FGT) requests that certain modifications be made to the above referenced construction permit and also requests approval for a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in the natural gas.

The permitted unit is a minor source at a minor facility. Changes are requested to eliminate requirements that exceed those specified by rule without significantly impacting reasonable compliance oversight.

Specifically, FGT requests the following changes to the referenced permit:

Change Specific Condition 1 so that all emissions limiting standards are omitted except for NOx and SO2 standards. The standards should be consistent with the standards that are applicable to the source in NSPS (40CFR61) and should be expressed in the units defined in the standard rather than in pounds per hour (lbs/hr) or tons per year (TPY).

Change Specific Condition 2 to read: "Visible emissions shall not exceed 20% opacity."

Revise Specific Condition 8 so that the test requirements are limited to:
-Annual Testing: for visible emissions by Method 9
-Prior to Renewal Testing: for Nox by Methods 1,2,3A, and 20
NOTE: The initial tests, as currently specified in the permit, were completed and showed compliance with all permit limits. FGT is requesting the change to affect only the "annual" and "prior to renewal" testing requirements.

Additionally, pursuant to Specific Condition 13, FGT requests approval of a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in its fuel gas (a copy of this request has also been sent to Hillsborough County EPC for their consideration). The permitted gas turbine burns only highly regulated pipeline quality natural gas that contains negligible amounts of nitrogen and sulfur. The initial compliance tests (attached) show the nitrogen and sulfur concentrations in the gas to be much less than the respective permit limits. The nitrogen and sulfur content of the fuel gas, supplied through FGT's pipeline, has historically been and will remain relatively constant at levels far below those of regulatory interest.

If you have any questions or would like to arrange a meeting to discuss these changes, please call me at (407) 875-5816.

Sincerely,

Allan Weatherford
Division Environmental Specialist

c Charlie Thompson
Roy Smith
Mark Winder
John Ludlow
Eric Peterson, Hillsborough County EPC

Gas Fuel F Factor & Heating Value Calculation

Client: Florida Gas Transmission Company
Sample ID: pipeline natural gas (residue gas)
Time: 6:23
Date: 3/21/95

CALCULATION OF DENSITY AND HEATING VALUE @ 60 °F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.4930	28.016	0.0744	0.00037	0.8078	0	0.00	0.0	0
CO2	1.0030	44.010	0.1170	0.00117	2.5844	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	95.1330	16.041	0.0424	0.04034	88.8320	23879	21212.20	1013.0	963.697
Ethane	2.2510	30.067	0.0803	0.00181	3.9807	22320	888.50	1792.0	40.3379
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.5020	44.092	0.1196	0.00060	1.3222	21661	286.41	2590.0	13.0018
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.1490	58.118	0.1582	0.00024	0.5191	21308	110.61	3363.0	5.01087
n-butane	0.1490	58.118	0.1582	0.00024	0.5191	21257	110.35	3370.0	5.0213
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.1000	72.144	0.1904	0.00019	0.4193	21091	88.44	4008.0	4.008
n-pentane	0.1000	72.144	0.1904	0.00019	0.4193	21052	88.27	4016.0	4.016
n-hexane	0.1190	86.169	0.2274	0.00027	0.5960	20940	124.79	4762.0	5.66678
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density	0.04541		100.0000	Gross Heating Value		Gross Heating Value	
		Specific Gravity	0.59356			Btu/lb	22910	Btu/SCF	1040.8

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.49	13.8119			0.804982658	
CO2	44.010	0.272273	0	1.00	44.1420	0.70047131			1.87034
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	95.13	1526.0285	66.7048437	22.2349479		
Ethane	30.067	0.8	0.2	2.25	67.6808	3.15565165	0.78891291		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.50	22.1342	1.0554699	0.23454915		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.15	8.6596	0.41768188	0.08704503		
n-butane	58.118	0.82759	0.17247	0.15	8.6596	0.41768188	0.08704503		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.10	7.2144	0.3503892	0.07007952		
n-pentane	72.144	0.83333	0.16667	0.10	7.2144	0.3503892	0.07007952		
n-hexane	86.169	0.83721	0.16279	0.12	10.2541	0.50034078	0.09728799		
H2S	34.076	0	0.058692	0.00	0.0000	0	0		
Totals				99.99900	1715.7994	73.6529195	23.67	0.804982658	1.87034

CALCULATED VALUES

O2 F Factor (dry)	8688	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	10662	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	1974	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	18.52	volume % water in flue gas @ 0% excess air
CO2 F Factor	1030	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	11.85	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	1.76	EPA Method 3a Fo value
Fuel VOC % (non-C1)	8.06%	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	3.98%	non-methane non-ethane fuel VOC content

TABLE 2: Summary of Results
Unit No. 2601

Company: Florida Gas Transmission Company
Plant: Compressor Station #26
Location: 2 miles NW of Lecanto in Citrus County
Technicians: CDC, LJB, LAB
Source: Solar Taurus Model 60S Solonox Turbine

Test Number	26C-1	26C-1*	26C-2	26C-3		
Date	3/21/95	3/21/95	3/21/95	3/21/95		
Start Time	9:01	9:01	11:22	13:00		FDEP Permit Limits
Stop Time	10:10	10:10	12:22	14:04		
Turbine/Compressor Operation					*Averages*	
Power Turbine Speed (%,NPT)	89.6	89.6	86.7	85.5	*87.3*	
Gas Producer Speed (%,NGP)	96.9	96.9	96.5	96.5	*96.6*	
Estimated Horsepower (bhp ISO Day, Solar program)	6439	6439	6149	6243	*6277*	6500
PCD Observed (psig)	134.7	134.7	131.0	131.1	*132.3*	
T-1 Temperature (°F)	72.7	72.7	78.0	78.3	*76.3*	
T-5 Temperature (°F)	1400	1400	1401	1400	*1400*	
Compressor Flow (MMSCFD)	446.7	446.7	473.0	466.7	*462.1*	
Gas Compressor Suction Pressure (psi)	808.5	808.5	833.7	871.1	*837.8*	
Gas Compressor Suction Temperature (°F)	63.9	63.9	63.3	63.3	*63.5*	
Gas Compressor Discharge Pressure (psi)	1027.7	1027.7	1038.5	1039.9	*1035.4*	
Gas Compressor Discharge Temperature (°F)	99.6	99.6	96.0	95.7	*97.1*	
Fuel Data (Residue Gas)						
Fuel Heating Value (Btu/SCF-HHV)	1041	1041	1041	1041	*1041*	
O2 "F-factor", based on fuel analysis	8688	8688	8688	8688	*8688*	
CO2 "F-factor", based on fuel analysis	1030	1030	1030	1030	*1030*	
Total Sulfur in Fuel (grains/100 SCF)	0.063	0.063	0.063	0.063	*0.063*	10
Fuel Flow (MMSCF/hr)	0.0510	0.0510	0.0498	0.0497	*0.0501*	0.0684
Heat Input (MMBtu/hr)	53.05	53.05	51.78	51.70	*52.18*	71.52
Ambient Conditions						
Temperature (°F, wet)	66	66	69	69	*68*	
(°F, dry)	74	74	80	80	*78*	
Atmospheric Pressure ("Hg, abs.)	29.89	29.89	29.87	29.84	*29.87*	
Humidity (lbs/lb of air)	0.0112	0.0112	0.0124	0.0124	*0.0120*	
Measured Emissions						
NOx (ppmv, dry)	24.1	22.0	22.5	23.5	*23.0*	
NOx (ppm @ 15% O2)	28.0	25.6	26.4	27.6	*26.9*	42.0
NOx (ppm @15% O2, ISO Day)	29.4	26.8	27.9	29.2	*28.4*	154.2†
CO (ppmv, dry)	6.7	6.7	5.6	4.8	*5.7*	
O2 (% volume, dry)	15.82	15.82	15.88	15.88	*15.86*	
CO2 (% volume, dry)	3.00	3.00	2.85	2.97	*2.94*	
Fo	1.69	1.69	1.76	1.69	*1.71*	
THC (ppmv, dry as Methane via M-25A)	0.95	0.95	0.30	0.13	*0.46*	
Visible Emissions (% Opacity)	0	0	0	0	*0*	10
Stack Volumetric Flow Rates						
via Pitot Tube Traverse (SCFH, dry)	2.04E+06	2.04E+06	2.02E+06	1.98E+06	*2.01E+06*	
via O2 "F-factor" (SCFH, dry)	1.90E+06	1.90E+06	1.87E+06	1.87E+06	*1.88E+06*	
via CO2 "F-factor" (SCFH, dry)	1.82E+06	1.82E+06	1.87E+06	1.79E+06	*1.83E+06*	
Mass Emissions (via EPA Methods 1-4)						
NOx (lbs/hr)	5.86	5.35	5.44	5.55	*5.53*	8.92
CO (lbs/hr)	0.99	0.99	0.82	0.69	*0.84*	6.46
THC (lbs/hr)	0.081	0.081	0.025	0.011	*0.039*	0.37 ¥
SO2 (lbs/hr, based on fuel flow and fuel sulfur)	0.0092	0.0092	0.0090	0.0089	*0.0090*	1.97
NOx (tons/yr)	25.7	23.4	23.8	24.3	*24.2*	39.1
CO (tons/yr)	4.34	4.34	3.61	3.02	*3.66*	28.29
THC (tons/yr)	0.35	0.35	0.11	0.05	*0.17*	1.62 ¥
SO2 (tons/yr, based on fuel flow and fuel sulfur)	0.040	0.040	0.039	0.039	*0.040*	8.62
NOx (g/bhp-hr)	0.413	0.377	0.401	0.403	*0.400*	0.62
CO (g/bhp-hr)	0.070	0.070	0.061	0.050	*0.060*	0.45
THC (g/bhp-hr)	0.0057	0.0057	0.0019	0.0008	*0.0028*	0.26 ¥

* Reports NOx recalibration value per EPA 40 CFR 60, Appendix A, Method 20, Section 6.2.3.
† EPA 40 CFR 60 Subpart GG NSPS requirement
¥ FDEP Permit limits are for non-methane Volatile Organic Compounds (VOC).

05 07-92 11:45AM FROM EPA FFS/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 S. 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

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 measurement 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 analysis 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.

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 K. Farrell at FTS 382-2875.

Attachment

cc: John Cranshaw
George Walsh
Robert Ajax
Earl Salo

Florida Gas Transmission Company

P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

April 12, 1996

CERTIFIED

Mr. Clair Fancy
Florida Department of Environmental Protection
Northwest District Branch Office
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Florida Gas Transmission Company - Station 30
Air Permit No. AC29-228821

Florida Gas Transmission Company (FGT) requests that certain modifications be made to the above referenced construction permit and also requests approval for a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in the natural gas.

The permitted unit is a minor source at a minor facility. Changes are requested to eliminate requirements that exceed those specified by rule without significantly impacting reasonable compliance oversight.

Specifically, FGT requests the following changes to the referenced permit:

Change Specific Condition 1 so that all emissions limiting standards are omitted except for NOx and SO2 standards. The standards should be consistent with the standards that are applicable to the source in NSPS (40CFR61) and should be expressed in the units defined in the standard rather than in pounds per hour (lbs/hr) or tons per year (TPY).

Change Specific Condition 2 to read: "Visible emissions shall not exceed 20% opacity."

Revise Specific Condition 8 so that the test requirements are limited to:
-Annual Testing: for visible emissions by Method 9
-Initial and Prior to Renewal Testing: for Nox by Methods 1,2,3A, and 20
NOTE: The initial tests, as currently specified in the permit, were completed and showed compliance with all permit limits. FGT is requesting the change to affect only the "annual" and "prior to renewal" testing requirements.

Additionally, pursuant to Specific Condition 13, FGT requests approval of a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in its fuel gas (a copy of this request has also been sent to Hillsborough County EPC for their consideration). The permitted gas turbine burns only highly regulated pipeline quality natural gas that contains negligible amounts of nitrogen and sulfur. The initial compliance tests (attached) show the nitrogen and sulfur concentrations in the gas to be much less than the respective permit limits. The nitrogen and sulfur content of the fuel gas, supplied through FGT's pipeline, has historically been and will remain relatively constant at levels far below those of regulatory interest.

If you have any questions or would like to arrange a meeting to discuss these changes, please call me at (407) 875-5816.

Sincerely,

Allan Weatherford
Division Environmental Specialist

c Charlie Thompson
Roy Smith
Curt Gavin
Ray Glass
Eric Peterson, Hillsborough County EPC

Table 2
Summary of Results Unit No. 3003

Company: Florida Gas Transmission Co.
Plant: Compressor Station No. 30
Location: 4 miles NE of Plant City
Hillsborough Co., FL on SR 582
Source: Solar Saturn T-1001S-312F
Technicians: CDC, LJB, DD

Test Number	30C-1	30C-2	30C-3		
Date	7/25/95	7/25/95	7/25/95		
Start Time	8:30	10:10	11:35		FDEP
Stop Time	9:44	11:10	12:35		Permit
Turbine/Compressor Operation				Averages	Limits
Power Turbine Speed (%, NPT)	80.9	79.9	80.5	80.4	
Gas Producer Speed (%, NGP)	96.8	95.9	96.0	96.2	
Horsepower (site bhp, via FGT cmprssr thruput calc.)	1057	1009.4	1010	1025	
PCD Observed (psig)	56.3	53.9	53.4	54.5	
Combustor Air Inlet Temperature (T-1, °F)	81.0	92.6	93.3	89.0	
Turbine Exhaust Stack Temperature (T-7, °F)	883	888	889	887	
Gas Compressor Suction Pressure (psig)	745.6	732.0	705.1	727.6	
Gas Compressor Suction Temperature (°F)	81.0	81.0	81.0	81.0	
Gas Compressor Discharge Pressure (psig)	917.6	898.6	867.3	894.5	
Gas Compressor Discharge Temperature (°F)	110.0	110.0	110.0	110.0	
Compressor Flow (MMSCFD)	596.1	603.0	613.0	604.0	
Turbine Fuel Data (Residue Gas)					
Fuel Heating Value (Btu/SCF, Gross)	1032	1032	1032	1032	
Fuel Specific Gravity	0.5838	0.5838	0.5838	0.5838	
O2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8676	8676	8676	8676	
CO2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1024	1024	1024	1024	
Total Sulfur in Fuel (grains Sulfur/100 SCF fuel)	0.088	0.088	0.088	0.088	10
Fuel Flow (MMSCFH)	0.0107	0.0107	0.0107	0.0107	0.0156
Heat Input (MMBtu/hr)	11.01	11.05	11.07	11.04	15.76
Brake-specific Fuel Consumption (Btu/bhp-hr)	10418	10945	10957	10773	
Ambient Conditions					
Atmospheric Presuure ("Hg)	29.89	29.92	29.93	29.91	
Temperature (°F): Dry bulb	80.5	88.5	90	86	
(°F): Wet bulb	79.3	79.5	82	80	
Humidity (lbs moisture/lb of air)	0.0208	0.0191	0.0207	0.0202	
Measured Emissions					
NOx (ppmv, dry basis)	30.3	30.7	29.9	30.3	
NOx (ppmv @ 15% O2)	44.1	44.9	43.7	44.3	
NOx (ppmv @15% O2, ISO Day)	54.6	52.6	52.5	53.2	150†
CO (ppmv, dry basis)	40.2	41.3	42.0	41.2	
O2 (% volume, dry basis)	16.85	16.87	16.86	16.86	
CO2 (% volume, dry basis)	2.28	2.37	2.24	2.30	
Visible Emissions (% opacity)	0	0	0	0	10
Fo (fuel factor, range = 1.600-1.834 for NG)	1.78	1.70	1.80	1.76	
Stack Volumetric Flow Rates					
via Pitot Tube Traverse (SCFH, dry basis)	5.19E+05	5.11E+05	5.01E+05	5.11E+05	
via O2 "F-factor" (SCFH, dry basis)	4.93E+05	4.97E+05	4.97E+05	4.96E+05	
via CO2 "F-factor" (SCFH, dry basis)	4.95E+05	4.77E+05	5.06E+05	4.93E+05	
Calculated Emission Rates (via pitot tube)					
NOx (lbs/hr)	1.88	1.88	1.79	1.85	3.95
CO (lbs/hr)	1.52	1.54	1.53	1.53	5.88
SO2 (lbs/hr, Based on fuel flow and fuel sulfur)	0.003	0.003	0.003	0.003	0.44
NOx (tons/yr)	8.2	8.2	7.8	8.1	17.30
CO (tons/yr)	6.7	6.7	6.7	6.7	25.75
SO2 (tons/yr, Based on fuel flow and fuel sulfur)	0.012	0.012	0.012	0.012	1.94
NOx (g/bhp-hr)	0.81	0.84	0.80	0.82	1.49
CO (g/bhp-hr)	0.65	0.69	0.69	0.68	2.22

† Sub part GG, NSPS NOx standard

Gas Fuel F Factor & Heating Value Calculation

Client: Florida Gas Transmission Company 50
Sample ID: pipeline natural gas (residue gas)
Time: 6:23
Date: 7/25/95

CALCULATION OF DENSITY AND HEATING VALUE @ 60°F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.3840	28.016	0.0744	0.00029	0.6397	0	0.00	0.0	0
CO2	0.8050	44.010	0.1170	0.00094	2.1090	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	95.8620	16.041	0.0424	0.04065	91.0145	23879	21733.35	1013.0	971.082
Ethane	2.3000	30.067	0.0803	0.00185	4.1356	22320	923.07	1792.0	41.216
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.3750	44.092	0.1196	0.00045	1.0043	21661	217.54	2590.0	9.7125
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.0900	58.118	0.1582	0.00014	0.3188	21308	67.93	3363.0	3.0267
n-butane	0.0720	58.118	0.1582	0.00011	0.2551	21257	54.22	3370.0	2.4264
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.0320	72.144	0.1904	0.00006	0.1364	21091	28.77	4008.0	1.28256
n-pentane	0.0190	72.144	0.1904	0.00004	0.0810	21052	17.05	4016.0	0.76304
n-hexane	0.0600	86.169	0.2274	0.00014	0.3055	20940	63.98	4762.0	2.8572
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density		0.04466	100.0000	Gross Heating Value Btu/lb	23106	Gross Heating Value Btu/SCF	1032.4
		Specific Gravity		0.58377					

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.38	10.7581			0.637383014	
CO2	44.010	0.272273	0	0.81	35.4281	0.57149832			1.52597
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	95.86	1537.7223	68.32856815	22.7761894		
Ethane	30.067	0.8	0.2	2.30	69.1541	3.277713975	0.81942849		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.38	16.5345	0.801499135	0.17811114		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.09	5.2306	0.256467027	0.0534478		
n-butane	58.118	0.82759	0.17247	0.07	4.1845	0.205173621	0.04275824		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.03	2.3086	0.113980444	0.02279664		
n-pentane	72.144	0.83333	0.16667	0.02	1.3707	0.067675889	0.0135355		
n-hexane	86.169	0.83721	0.16279	0.06	5.1701	0.256448311	0.04986469		
H2S	34.076	0	0.058692	0.00	0.0000	0	0		
Totals				99.99900	1687.8617	73.87902487	23.96	0.637383014	1.52597

CALCULATED VALUES

O2 F Factor (dry)	**8676**	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	**10657**	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	**1981**	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	**18.59**	volume % water in flue gas @ 0% excess air
CO2 F Factor	**1024**	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	**11.80**	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	**1.77**	EPA Method 3a Fo value
Fuel VOC % (non-C1)	**6.38%**	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	**2.17%**	non-methane non-ethane fuel VOC content

05 07-92 11:45AM FROM EPA EPS/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

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 measurement 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 analysis 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.

bi-monthly, 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 K. Farrell at FTS 382-2875.

Attachment

cc: John Cranshaw
George Walsh
Robert Ajax
Earl Salo

Memorandum

Florida Department of
Environmental Protection

TO: Clair Fancy /Howard Rhodes

THROUGH: A. A. Linero

FROM Teresa Heron

DATE: August 21, 1996

SUBJECT: Florida Gas Transmission - Amendments
Hillsborough County, Citrus County, and Taylor County

Attached are two letters amending the construction permits for the above mentioned compressor stations. These units burn clean natural gas and, during initial compliance testing, demonstrated compliance with all of the required emission standards. These amendments will delete emission standards and testing requirements for carbon monoxide, particulate matter and volatile organic compounds because they are not required by the New Source Performance Standard (NSPS) for Gas Turbines or necessary for Prevention of Significant Deterioration (PSD) per Rule 62-212.400, F.A.C. Deleting the requirements will not result in increased emissions of any of these pollutants, but will simplify the applicable permits and reduce annual testing costs.

The visible emissions requirements for these units will be revised from 10 percent opacity to 20 percent in accordance with the Rule 62-296.320, F.A.C. The Custom fuel monitoring schedule request is being reviewed by EPA Region IV. It will be incorporated by reference as soon as EPA approves it.

A letter amendment will be prepared for the Taylor County station when EPA approves the request. This unit did not require the other changes made to the permits for the other stations.

I recommend your approval and signature.

TH/hh

Florida Gas Transmission Company

P. O. Box 945100 Maitland, Florido 32794-5100 (407) 875-5800

August 1, 1996

Teresa Herron
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Ms. Herron:

Enclosed please find the publication affidavit from the Tampa Tribune for the proposed permit amendment, Intent to Issue for permits 0170035-001-AC, 0570438-002-AC, and 1230034-002-AC.

If you have any questions or need any additional information, please call me at (407)-875-5865.

Sincerely,

Clay Roesler
Division Environmental Specialist

CR/wlb

cc: Air Permit File
Compressor Stations 15, 26, and 30

enclosure

THE TAMPA TRIBUNE

Published Daily

Tampa, Hillsborough County, Florida

State of Florida
County of Hillsborough } ss.

Before the undersigned authority personally appeared R. Putney, who on oath says that he is Accounting Manager of The Tampa Tribune, a daily newspaper published at Tampa in Hillsborough County, Florida; that the attached copy of advertisement being a

LEGAL NOTICE

in the matter of

PUBLIC NOTICE

was published in said newspaper in the issues of

JULY 24, 1996

Affiant further says that the said The Tampa Tribune is a newspaper published at Tampa in said Hillsborough County, Florida, and that the said newspaper has heretofore been continuously published in said Hillsborough County, Florida, each day and has been entered as second class mail matter at the post office in Tampa, in said Hillsborough County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm, or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

R Putney

Sworn to and subscribed before me, this 29 *day of* JULY, *A.D. 19*96

Personally Known_____ or Produced Identification_____

*Type of Identification Produced*_____

(SEAL) Ina S Kennedy

INA S. KENNEDY
Notary Public, State of Florida
My comm. expires April 21, 2000
No. CC548841

TO ISSUE AIR CONSTRUCTION PERMIT AMENDMENTS STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit Nos: 0170035-001-AC-Hillsborough County
0570438-002-AC-Citrus County

The Department of Environmental Protection gives notice of its intent to issue an air construction permit amendments to Florida Gas Transmission Company (FGT) for permit revisions to eliminate emissions limitations and revise testing requirements which exceed those specified by rule for its units located at Compressor Station No. 30, Northeast of Plant City on SR 582 in Hillsborough County, and Compressor Station No. 26, Northwest of Lecanto in Citrus County.

These facilities burn clean natural gas and, during initial compliance testing, demonstrated compliance with all of the required emission standards. This amendment will delete emission standards and testing requirements for carbon monoxide, particulate mater and volatile organic compounds because they are not required by the New Source Performance Standard (NSPS) for Gas Turbines or necessary for Prevention of Significant Deterioration (PSD) per Rule 62-212.400, F.A.C. Deleting the requirements will not result in increased emissions of any of these pollutants, but will simplify the applicable permits and reduce annual testing costs.

The visible emissions requirements for these units will be revised form 10 percent capacity to 20 percent in accordance with the Rule 62-296.320, F.A.C. A Best Available Control Technology determination was not required. The applicant's name and address is Florida Gas Transmission Company, Post Office Box 945100, Maitland, Florida.

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

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of this Notice. Written Comments should be provided to the Department of Environmental Protection, Bureau of Air Regulation, 2600 Blair Stone Road, MS 5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Amendment, the Department shall issue a Revised DRAFT Permit Amendment and require, if applicable, another Public Notice.

In addition, any person whose substantial interests are affected by this proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida 32399-3000 within 14 days of publication of this Notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information; (a) The name, address, and the telephone number of each petitioner, the applicant's name and address, the Department Permit File Number, and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this DRAFT Permit Amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice, in the Office of General Counsel of the Department. Failure to petition within the allotted time frame constitutes a waiver of any rights such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 60Q-2.010, Florida Administrative Code.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m. Monday through Friday, except legal holidays, at the Department offices listed below. The complete project file includes the Draft Permit Amendment, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section at the Department's Tallahassee address and at (904)488-1344.

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

Department of Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619-8219
(813)744-6100

Hillsborough County Environmental Protection Commission
1410 North 21st Street
Tampa, Florida 33605
(813)272-5530

3166 7/23/96

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 2, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Allan Weatherford
Environmental Specialist
Florida Gas Transmission Company
Maitland, Florida 32794-5100

RE: DRAFT Permit Amendment Nos:
0170035-001-AC Hillsborough County
0570438-002 -AC Citrus County
1230034- 002-AC Taylor County

Dear Mr. Weatherford:

Attached is one copy of the Proposed Permit Amendment, Intent to Issue, and Public Notice of Intent to Issue (for publication by Florida Gas Transmission) for each of the above mentioned facilities located in Florida.

The "*PUBLIC NOTICE* " must be published by the applicant within 30 days of receipt of this letter. The applicant shall provide Proof of publication, i.e., newspaper affidavit, to the permitting authority office within 7 (seven) days of publication.

Please submit any written comments you wish to have considered concerning the proposed action to Mr. A. A. Linero, P.E., Administrator, New Source Review Section. If you have any other questions, please contact Teresa Heron at (904)488-1344.

Sincerely,

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

CHF/th/t

Enclosure

Copies furnished to:

Robert Leech, NED
Bill Thomas, SWD
Rick Kirby, EPCHC

BEST AVAILABLE COPY

Is your RETURN ADDRESS completed on the reverse side?

- Complete items 3, and 4a & b.
- 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:
Allan Weatherford, ES
Fla. Gas Transmission
PO Box 945100
Maitland, Fl
32794-5100

4a. Article Number
P339 251 122

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

7. Date of Delivery
7-12-96

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

2

P 339 251 122

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

Sent to: Allan Weatherford	
Street & Number: Fla. Gas Transmi	
Post Office, State, & ZIP Code: Maitland, Fl	
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: Hillsboro Citrus Taylor	7-9-96

PS Form **3800**, April 1995

INTENT TO ISSUE AIR CONSTRUCTION PERMIT AMENDMENT

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the Matter of an
Application for Permit by:

Mr. Allan Weatherford
Environmental Specialist
Florida Gas Transmission Company
Post Office Box 945100
Maitland, Florida 32794-5100

DRAFT Permit Amendment Nos:
AC 29-228821 Hillsborough County
AC 09-229441 Citrus County
AC 62-229319 Taylor County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit amendment (copy of DRAFT Permit amendment enclosed) for a portion of the proposed changes at the sources detailed in the application specified above, for the reasons stated below.

The applicant, Florida Gas Transmission Company (FGT), applied on May 10, 1996 to the Department for permit revisions to eliminate emissions limitations and revise testing requirements which exceed those specified by rule for its compressor stations located at Compressor Station No. 30, Northeast of Plant City on SR 582 in Hillsborough County, Compressor Station No. 26, Northwest of Lecanto in Citrus County, and Compressor Station No. 15, North of Perry on C-361 in Taylor County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. The Department has determined that air construction permit amendments as well as approval from EPA (of the Custom Fuel Monitoring Schedule) are required prior to operating these facilities as proposed.

The Department will issue the permit amendment as stated in the attached Department letter unless a petition for an administrative proceeding (hearing) is filed in accordance with Section 120.57, F.S. The Department will not act on the Custom Fule Monitoring Schedule until approval is given by EPA.

The Department intends to issue these air construction permit amendments based on the belief that reasonable assurances have been provided to indicate that operation of the source will not adversely impact air quality, and the sources will comply with all appropriate provisions of Chapters 62-4, 62-210, 62-212, 62-272. 62-275, 62-296, and 62-297, .

Pursuant to Section 403.815, F.S., and Rule 62-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed "*PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT AMENDMENT*." The notice shall be published one time only within 30 (thirty) days of receipt of this notice in the legal advertisement section of a newspaper of general circulation in the area affected. For the purpose of these rules, "publication in a newspaper of general

circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in each county where the activity is to take place. Where there is more than one newspaper of general circulation in the county, the newspaper used must be one with significant circulation in the area that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation at the address below within 7 (seven) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit

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

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of "*PUBLIC NOTICE OF INTENT TO ISSUE PERMIT AMENDMENT*." Written comments should be provided to the permitting authority office. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Amendment, the Department shall issue a Revised DRAFT Permit Amendment and require, if applicable, another Public Notice.

In addition, any persons whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, F.S. The petition must contain the information set forth below and must be filed (received) through the Office of General Counsel of the Department at the address listed below. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of the receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated below at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the proposed source is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by petitioner, if any;
(e) A statement of facts which the petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes the petitioner contends require reversal or modification of the Department's action or proposed action; and,
(g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this DRAFT Permit Amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the application/request have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above, and be filed (received) within 14 days of receipt of this intent with in the Office of General Counsel of the Department at the address listed below. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 60Q-2.010, F.A.C.

Executed in Tallahassee, Florida.

C. H. Fancy, Chief
Bureau of Air Regulation

Florida Gas Transmission
AC29-228821 Hillsborough County, AC09-229441 Citrus County, AC62-229319 Taylor County

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **INTENT TO ISSUE PERMIT AMENDMENT** and all copies were certified mailed before the close of business on 7-9-96 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Kim Joker 7-9-96
Clerk Date

Enclosures

Referenced regulatory agency offices:

Permitting Authority Office
Department of Environmental Protection
Bureau of Air Regulation
2600 Blairstone Road, MS 5505
Tallahassee, Florida, 32399-2400
(904)488-1344

Legal Office
Department of Environmental Protection
Office of General Counsel
3900 Commonwealth Boulevard, MS 35
Tallahassee, Florida, 32399-3000
(904)488-9730

PUBLIC NOTICE OF INTENT TO ISSUE
AIR CONSTRUCTION PERMIT AMENDMENTS

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit Nos: 0170035-001-AC - Hillsborough County
0570438-002-AC - Citrus County

The Department of Environmental Protection (Department) gives notice of its intent to issue air construction permit amendments to Florida Gas Transmission Company (FGT) for permit revisions to eliminate emissions limitations and revise testing requirements which exceed those specified by rule for its units located at Compressor Station No. 30, Northeast of Plant City on SR 582 in Hillsborough County, and Compressor Station No. 26, Northwest of Lecanto in Citrus County.

These facilities burn clean natural gas and, during initial compliance testing, demonstrated compliance with all of the required emission standards This amendment will delete emission standards and testing requirements for carbon monoxide, particulate matter and volatile organic compounds because they are not required by the the New Source Performance Standard (NSPS) for Gas Turbines or necessary for Prevention of Significant Deterioration (PSD) per Rule 62-212.400, F.A.C. Deleting the requirements will not result in increased emissions of any of these pollutants, but will simplify the applicable permits and reduce annual testing costs.

The visible emissions requirements for these units will be revised from 10 percent opacity to 20 percent in accordance with the Rule 62-296.320, F.A.C. A Best Available Control Technology determination was not required. The applicant's name and address is Florida Gas Transmission Company, Post Office Box 945100, Maitland, Florida.

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

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 (fourteen) days from the date of publication of this Notice. Written comments should be provided to the Department of Environmental Protection, Bureau of Air Regulation, 2600 Blair Stone Road, MS 5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in this DRAFT Permit Amendment, the Department shall issue a Revised DRAFT Permit Amendment and require, if applicable, another Public Notice.

In addition, any person whose substantial interests are affected by this proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes (F.S.). The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida 32399-3000 within 14 days of publication of this Notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information; (a) The name, address, and the telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (b) A statement of how and when each petitioner received notice of the Department's action or proposed action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action; (d) A statement of the material facts disputed by petitioner, if any; (e) A statement of facts which petitioner contends warrants reversal or modification of the Department's action or proposed action; (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and, (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this DRAFT Permit Amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice, through the Office of General Counsel of the Department. Failure to petition within the allotted time frame constitutes a waiver of any rights such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 60Q-2.010, Florida Administrative Code.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department offices listed below. The complete project file includes the Draft Permit Amendment, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Administrator, New Source Review Section at the Department's Tallahassee address and at (904)488-1344.

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Drive, Suite 4
Tallahassee, Florida 32301
(904)488-1344

Department of Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619-8219
(813)744-6100

Hillsborough County Environmental
Protection Commission
1410 North 21st Street
Tampa, Florida 33605
(813)272-5530

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 2, 1996

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Allan Weatherford
Division Environmental Specialist
Florida Gas Transmission Company
Post Office Box 945100
Maitland, Florida 32794-5100

Dear Mr. Weatherford:

RE: Request for Amendments to Air Construction Permits:
AC 29-228821 (Station No 30) Hillsborough County
AC 09-229441 (Station No. 26) Citrus County
AC 62-229319 (Station No. 15) Taylor County

The Department is in receipt of your letter dated April 12 and May 10, 1996, requesting to amend the above permits to include the EPA custom fuel monitoring schedule and to modify specific conditions Nos. 1, 2 and 8 of the first two permits.

The Department has reviewed this request and hereby amends the above mentioned permits as follows:

PERMITS: AC 29-228821 and AC 09-229441

SPECIFIC CONDITION NO. 1

This condition will be modified to exclude the emission limits standard for all pollutants except for nitrogen oxides (NO_x) and sulfur dioxide (SO_2). The emissions expressed in units of mass (TPY) will remain as a condition of the permit. This facility has already demonstrated initial compliance with the permit limits.

FROM:

PERMIT AC 29-228821

POLLUTANT	lbs/hr	tons/yr	Emission Factor
NOx	3.95	17.3	1.49 g/bhp-hr
CO	5.88	25.75	2.22 g/bhp-hr
VOC(s)	0.25	1.10	0.95 g/bhp-hr
(non-methane)			
PM	0.077	0.34	5 lbs/MMscf
PM10	0.077	0.34	5 lbs/MMscf
S02	0.44	1.94	10 gr S/100scf

**NOx emission standard shall not exceed 42 ppmv at 15% oxygen on a dry basis.
* Based on 100% load conditions.

PERMIT AC 09-229441

POLLUTANT	lbs/hr	tons/yr	Emission Factor
NOx	8.92	39.05	0.62 g/bhp-hr
CO	6.46	28.29	0.45 g/bhp-hr
VOC(s)	0.37	1.62	0.26 g/bhp-hr
(non-methane)			
PM	0.35	1.51	5 lbs/MMscf
PM10	0.35	1.51	5 lbs/MMscf
S02	1.97	8.62	10 gr S/100scf

**NOx emission standard shall not exceed 42 ppmv at 15% oxygen on a dry basis.
* Based on 100% load conditions.

TO:

Standard for Sulfur Dioxide [40 CFR 60.333(a)]

The owner or operator shall not cause to be discharge into the atmosphere from any gas turbine any gases which contain sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis. Annual emissions shall not exceed 1.94 TPY (AC29-228221) and 8.62 TPY (AC09-229441).

Standard for Nitrogen Oxides

NOx emissions shall not exceed 42 ppmv at 15% oxygen on a dry basis (Based on a 100% load conditions). Annual emissions shall not exceed 17.3 TPY (AC 29-228221) and 39.05 TPY (AC 09-229441).

SPECIFIC CONDITION No. 2

FROM:

Visible Emissions shall not exceed 10% opacity.

TO:

Visible emissions shall not exceed 20% opacity.

SPECIFIC CONDITION No. 8

FROM:

Compliance with the allowable emission limits shall be determined within 60 days after achieving the maximum production rate at which this facility will be operated, but not later than 180 days after initial start-up and annually thereafter except as provided in Specific Condition 10, below, by the following reference methods as described in 40 CFR 60, Appendix A (July 1992 version) and adopted by reference in Chapter 17-297, F.A.C.

Method 1	Sample and Velocity Traverses
Method 2	Volumetric Flow Rate
Method 3 or 3A	Gas Analysis
Method 9	Determination of the Opacity of the Emissions from Stationary Sources
Method 10	Determination of the Carbon Monoxide from Stationary Sources
Method 20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Gas Turbines
Method 18	Measurement of Gaseous Organic Compounds Emissions by Gas Chromatography
Method 25A	Determination of Total Gaseous OrganicConcentrations Using a Flame Ionization Analyzer

TO:

Compliance with the allowable emission limits shall be determined by the following EPA reference methods as described in 40 CFR 60, Appendix A and adopted by reference in Chapter 62-297, F.A.C.

DRAFT

Method 1	Sample and Velocity Traverses
Method 2	Volumetric Flow Rate
Method 3 or 3A	Gas Analysis
Method 9	Determination of the Opacity of the Emissions from Stationary Sources
Method 20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Gas Turbines

Since this source already demonstrated initial compliance with permitted emission limits, subsequent testing frequency (in operating permits) shall be as determined by the Hillsborough County Environmental Protection Commission (EPCHC).

CUSTOM FUEL MONITORING SCHEDULE

AC 29-228821, AC 09-229441 and AC 62-229319

The custom monitoring schedule will be incorporated by reference after approval by EPA, will be incorporated by reference. Currently, EPA is in the process of reviewing FGT request.

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

Sincerely,

DRAFT

Howard L. Rhodes, Director
Division of Air Resources Management

HLR/th/t

Attachment to be Incorporated

Mr. Allan Weatherford's letters of April 12 and May 10, 1996.

cc: Robert Leech, NED
Bill Thomas, SWD
Rick Kirby, EPCHC

Memorandum

Florida Department of
Environmental Protection

TO: Clair Fancy

THRU: A. A. Linero

FROM Teresa Heron TH by aal

DATE: July 2, 1996

SUBJECT: Florida Gas Transmission - Amendments
Hillsborough County, Citrus County and Taylor County

Clair - We will issue subsequent notice when EPA approves Customized Fuel Monitoring Schedule
AL

Attached is a letter modifying a construction permit for the above mentioned facilities. These facilities burn clean natural gas and, during initial compliance testing, demonstrated compliance with all of the required emission standards. This amendment will delete emission standards and testing requirements for carbon monoxide, particulate matter and volatile organic compounds because they are not required by the New Source Performance Standard (NSPS) for Gas Turbines or necessary for Prevention of Significant Deterioration (PSD) per Rule 62-212.400, F.A.C. Deleting the requirements will not result in increased emissions of any of these pollutants, but will simplify the applicable permits and reduce annual testing costs.

In addition, the visible emissions requirements for these units will be revised from 10 percent opacity to 20 percent in accordance with the Rule 62-296.320, F.A.C.

I recommend your approval and signature.

TH/t

Florida Gas Transmission Company

P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

May 9, 1996

A. A. Linero, P.E.
Administrator
New Source Review Section
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Sir or Madam:

Enclosed please find our check in the amount of $250.00 for processing fees for our amendment request for permits AC09-229441, AC62-229319, and AC29-228821.

If you have any questions or need additional information, please call me at (407)-875-5816.

Sincerely,

Allan Weatherford
Division Environmental Specialist

REMITTANCE STATEMENT

VOUCHER NO.	INVOICE DATE	INVOICE NO.	PURCHASE ORDER	AMOUNT		
				GROSS	DISCOUNT	NET
INV050696	5-6-96	INV050696		250.00		
					TOTAL	250.00

SPECIAL INSTRUCTIONS:
Permit AC29-228821/AC09-229441/AC62-229319 amendment application fee

DETACH AND RETAIN THIS STUB FOR YOUR RECORDS.

ENRON CORP

P. O. Box 1188
Houston, TX 77251-1188

62-20
311

CHECK NO. 0622510560

CHECK DATE 5-9-96

PAY EXACTLY Two hundred and fifty and no/100---------- DOLLARS

THIS CHECK IS VOID UNLESS PRINTED ON BLUE BACKGROUND

$250.00

NOT VALID AFTER 90 DAYS

PAY TO THE ORDER OF Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

NOT VALID OVER $5000.00 UNLESS COUNTERSIGNED

FIELD DISBURSEMENT ACCOUNT

CITIBANK DELAWARE

[redacted]

0510438-002 AC - Fink
0170035-001AC
1030031-002 AC

File

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 6, 1996

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Allan Wetherford,
Division Environmental Specialist
Florida Gas Transmission
Post Office Box 945100
Maitland, Florida 32794-5100

Dear Mr. Wetherford:

The Bureau of Air Regulation received your, request to amend permit AC29-228821, Station 30; AC09-229441, Station 26; AC62-229319, Station 15. According to Rule 62-4.050(4) (q) 4., before we can begin processing your request, we will need a $250 processing fee. If you have any questions, please call Kanani Winans at (904)488-1344.

Sincerely,

A. A. Linero, P. E.
Administrator
New Source Review Section

AAL/kw

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- 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. Allan Wetherford
Division Environmental Specialist
Florida Gas Transmission
Post Office Box 945100
Maitland, Florida 32794-5100

4a. Article Number
Z 127 633 206

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

7. Date of Delivery
MAY 09 1996

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

MAITLAND FL
USPS 32751

Z 127 633 206

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Allan Wetherford	
Street and No. FGT	
P.O., State and ZIP Code PO Box 945100 Maitland 32794	
Postage	$ 5100
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date AC62-229317 5-6-96 AC29-228821 AC09-229441	

PS Form 3800, March 1993

1230034-002-AC

Florida Gas Transmission Company

P. O. Box 945100 Maitland, Florida 32794-5100 (407) 875-5800

NORTHEAST DISTRICT
RECEIVED
APR 17 1996
DEP - JACKSONVILLE

April 12, 1996

CERTIFIED

Ms. Rita Felton
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B-200
Jacksonville, FL 32256-7577

Dear Ms. Felton:

Re: Florida Gas Transmission Company - Station 15
Turbine Compressor 1507, Air Permit No. AC62-229319

Florida Gas Transmission Company (FGT) requests approval for a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in the natural gas fuel for each of the referenced turbine units.

Pursuant to Specific Condition 13, FGT requests approval of a custom monitoring schedule for sampling and analyzing nitrogen and sulfur in its fuel gas. The permitted gas turbine burns only highly regulated pipeline quality natural gas that contains negligible amounts of nitrogen and sulfur. The initial compliance tests (attached) show the nitrogen and sulfur concentrations in the gas to be much less than the respective permit limits. The nitrogen and sulfur content of the fuel gas, supplied through FGT's pipeline, has historically been and will remain relatively constant at levels far below those of regulatory interest.

If you have any questions or would like to arrange a meeting to discuss these changes, please call me at (407) 875-5816.

Sincerely,

Allan Weatherford
Division Environmental Specialist

c Glenn Sellars
Roy Smith
Norman Tedder

TABLE 2
Summary of Results
Unit No. 1507

Florida Gas Transmission Company
Compressor Station No. 15
6 miles N of Perry on C-361 in Taylor County, FL
Solar Mars Model 90S
Technicians: CDC, LJB, DLD

Test Number	15C-4	15C-5	15C-6		FDEP Permit Limits
Date	8/29/95	8/29/95	8/29/95		
Start Time	8:50	9:13	10:37		
Stop Time	9:00	10:21	11:50		
Turbine/Compressor Operation				*Averages*	
Power Turbine Speed (NPT, %)	94.6	94.2	93.3	*94.0*	
Gas Producer Speed (NGP, %)	100.9	100.8	100.5	*100.7*	
Estimated Horsepower (Solar Compressor Shaft, bhp)	11301	11326	11254	*11294*	11261*
Engine Compressor Discharge Pressure (PCD, psig)	180.6	179.4	176.3	*178.8*	
Combustor Air Inlet Temperature (T-1, °F)	84.0	85.9	88.5	*86.1*	
Power Turbine Exhaust Temperature (T-5, °F)	1290	1290	1291	*1290*	
Gas Compressor Suction Pressure (psig)	765.3	768.9	779.5	*771.2*	
Gas Compressor Suction Temperature (°F)	72.9	72.3	72.0	*72.4*	
Gas Compressor Discharge Pressure (psig)	1059.0	1065.8	1071.4	*1065.4*	
Gas Compressor Discharge Temperature (°F)	128.1	128.3	127.7	*128.0*	
Compressor Flow (MMSCFD)	580.3	574.0	572.2	*575.5*	
Turbine Fuel Data (Residue Gas)					
Fuel Heating Value (Btu/SCF, HHV)	1034	1034	1034	*1034*	
Fuel Specific Gravity	0.5840	0.5840	0.5840	*0.5840*	
O2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	8674	8674	8674	*8674*	
CO2 "F-factor" (DSCFex/MMBtu @ 0% excess air)	1024	1024	1024	*1024*	
Total Sulfur in Fuel (grains Sulfur/100 SCF fuel)	0.059	0.059	0.059	*0.059*	10
Fuel Flow (MMSCFH)	0.0921	0.0915	0.0920	*0.0919*	0.1265
Heat Input (MMBtu/hr)	95.29	94.67	95.16	*95.04*	131.59
Ambient Conditions					
Atmospheric Presuure ("Hg)	29.82	29.84	29.86	*29.84*	
Temperature (°F): Dry bulb	79	80	82	*80*	
(°F): Wet bulb	74	76	72	*74*	
Humidity (lbs moisture/lb of air)	0.0166	0.0180	0.0138	*0.0161*	
Measured Emissions					
NOx (ppmv, dry basis)	23.9	24.0	23.4	*23.8*	
NOx (ppmv @ 15% O2)	**27.5**	**27.7**	**27.2**	*27.5*	42.0
NOx (ppmv @ 15% O2, ISO Day)	31.2	32.0	28.8	*30.7*	81.2†
CO (ppmv, dry basis)	0.9	1.1	1.3	*1.1*	
O2 (% volume, dry basis)	15.78	15.79	15.82	*15.80*	
CO2 (% volume, dry basis)	2.92	2.97	2.96	*2.95*	
Visible Emissions (% opacity)	0	0	0	*0*	10
Fo (fuel factor, range = 1.600-1.834 for NG)	1.75	1.72	1.72	*1.73*	
Stack Volumetric Flow Rates					
via Pitot Tube Traverse (SCFH, dry basis)	4.17E+06	4.02E+06	3.80E+06	*4.00E+06*	
via O2 "F-factor" (SCFH, dry basis)	3.37E+06	3.36E+06	3.40E+06	*3.38E+06*	
via CO2 "F-factor" (SCFH, dry basis)	3.34E+06	3.26E+06	3.29E+06	*3.30E+06*	
Calculated Emission Rates (via pitot tube)					
NOx (lbs/hr)	11.9	11.5	10.6	*11.3*	16.14
CO (lbs/hr)	0.27	0.32	0.36	*0.32*	11.71
SO2 (lbs/hr, Based on fuel flow and fuel sulfur)	0.016	0.015	0.016	*0.015*	3.61
NOx (tons/yr)	52.2	50.5	46.5	*49.7*	70.70
CO (tons/yr)	1.2	1.4	1.6	*1.4*	51.30
SO2 (tons/yr, Based on fuel flow and fuel sulfur)	0.068	0.068	0.068	*0.068*	15.83
NOx (g/bhp-hr)	0.48	0.46	0.43	*0.46*	0.58
CO (g/bhp-hr)	0.011	0.013	0.014	*0.013*	0.42

* 100% of permitted output at ambient temperature of 80°F

† EPA NSPS Performance Standard

Gas Fuel F Factor & Heating Value Calculation

Client Florida Gas Transmission Company
Sample ID pipeline natural gas (residue gas), St. 15
Time 16:02
Date 8/28/95

CALCULATION OF DENSITY AND HEATING VALUE @ 60°F and 30 in Hg

Component	% Volume	Molecular Wt.	Density (lb/ft3)	% volume x Density	weight %	Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
Hydrogen		2.016	0.0053	0.00000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.00000	0.0000	0	0.00	0.0	0
Nitrogen	0.3630	28.016	0.0744	0.00027	0.6045	0	0.00	0.0	0
CO2	0.7530	44.010	0.1170	0.00088	1.9719	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	95.8760	16.041	0.0424	0.04065	90.9870	23879	21726.77	1013.0	971.224
Ethane	2.3070	30.067	0.0803	0.00185	4.1464	22320	925.47	1792.0	41.3414
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.3970	44.092	0.1196	0.00047	1.0627	21661	230.20	2590.0	10.2823
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.0970	58.118	0.1582	0.00015	0.3435	21308	73.19	3363.0	3.26211
n-butane	0.0800	58.118	0.1582	0.00013	0.2833	21257	60.21	3370.0	2.696
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.0340	72.144	0.1904	0.00006	0.1449	21091	30.56	4008.0	1.36272
n-pentane	0.0210	72.144	0.1904	0.00004	0.0895	21052	18.84	4016.0	0.84336
n-hexane	0.0720	86.169	0.2274	0.00016	0.3665	20940	76.74	4762.0	3.42864
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density	0.04468		100.0000	Gross Heating Value		Gross Heating Value	
		Specific Gravity	0.58403			Btu/lb	23142	Btu/SCF	1034.4

CALCULATION OF F FACTORS

Component	Mol. Wt.	C Factor	H Factor	% volume	Fract. Wt.	Weight Percents Carbon	Hydrogen	Nitrogen	Oxygen
Hydrogen	2.016	0	1	0.00	0.0000		0		
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.36	10.1698			0.602268295	
CO2	44.010	0.272273	0	0.75	33.1395	0.534352898			1.42678
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	95.88	1537.9469	68.3093034	22.7697678		
Ethane	30.067	0.8	0.2	2.31	69.3646	3.286282746	0.82157069		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.40	17.5045	0.848157315	0.18847963		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.10	5.6374	0.276296178	0.0575802		
n-butane	58.118	0.82759	0.17247	0.08	4.6494	0.227873136	0.04748883		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.03	2.4529	0.121052399	0.02421106		
n-pentane	72.144	0.83333	0.16667	0.02	1.5150	0.074767658	0.01495389		
n-hexane	86.169	0.83721	0.16279	0.07	6.2042	0.307606285	0.05981203		
H2S	34.076	0	0.0586923	0.00	0.0000	0	0		
Totals				100.00000	1688.5843	73.98569201	23.98	0.602268295	1.42678

CALCULATED VALUES		
O2 F Factor (dry)	**8674**	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	**10654**	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	**1980**	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	**18.59**	volume % water in flue gas @ 0% excess air
CO2 F Factor	**1024**	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	**11.81**	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	**1.77**	EPA Method 3a Fo value
Fuel VOC % (non-C1)	**6.57%**	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	**2.36%**	non-methane non-ethane fuel VOC content