



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

RECEIVED

APR 03 1998

BUREAU OF
AIR REGULATION

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 _{WRB}

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. Newton, 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

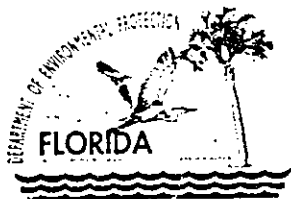
Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent by <i>Paula Koster</i>	
Street & Number <i>501</i>	
Post Office, State, & ZIP Code <i>Thailand, FL</i>	
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	<i>10-15-97</i>
<i>Stat-30</i>	
<i>" 26</i>	
<i>" 15</i>	

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,



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

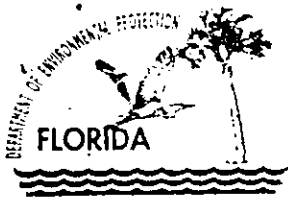
Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to <i>Clayton Roeder</i>	
Street & Number <i>FL. GAS TRANS.</i>	
Post Office, State & ZIP Code <i>Maitland, FL</i>	
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 <i>stat. 15</i> <i>5-6-97</i> <i>21</i> <i>26</i> <i>30</i>	

PS Form 3800, April 1995



1230034-002-AC

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 Neely, 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, 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	12-23-91	
FGT Comp. Station 301 2615		

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):

- Addressee's Address
- Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
 Mr. R. Douglas Neely
 US EPA - Region IV
 Air Pest. & Toxics Msmt.
 61 Forsyth St.
 Atlanta, GA 30303-8104

4a. Article Number
 P 265 659 273

4b. Service Type

<input type="checkbox"/> Registered	<input checked="" type="checkbox"/> Certified
<input type="checkbox"/> Express Mail	<input type="checkbox"/> Insured
<input type="checkbox"/> Return Receipt for Merchandise	<input type="checkbox"/> COD

7. Date of Delivery
 12-29-91

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.

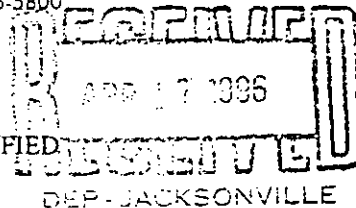


Florida Gas Transmission Company

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

1230034-002-AC

NORTHEAST DISTRICT



April 12, 1996

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.

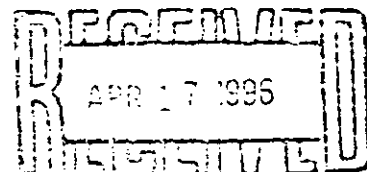
Sincerely,

Allan Weatherford
Division Environmental Specialist

c Glenn Sellars
Roy Smith
Norman Tedder

TABLE 2
Summary of Results
Unit No. 1507

NORTHEAST DISTRICT



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

Test Number	15C-4	15C-5	15C-6	Averages	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					
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 Pressure ("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)	0.43	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 30°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/ft ³)	% volume		Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
				x Density	weight %				
Hydrogen		2.016	0.0053	0.0000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.0000	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
CO ₂	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	3563.0	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
H ₂ S		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	
		Specific Gravity		0.58403				Btu/lb 23142	
								Gross Heating Value	
								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	
CO ₂	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	5.6274	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		
H ₂ S	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		
O ₂ F Factor (dry)	8674	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O ₂ 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
CO ₂ F Factor	1024	DSCF of CO ₂ /MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	11.81	volume % CO ₂ in flue gas @ 0% O ₂
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



Florida Gas Transmission Company

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

670035-001-AC

RECEIVED

APR 16 1996

BUREAU OF
AIR REGULATION

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,

A handwritten signature in cursive script, appearing to read "Allan Weatherford".

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/ft ³)	% volume		Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
				x Density	weight %				
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
CO ₂	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
H ₂ S		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	Btu/SCF
			22910	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				
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.49	13.8119			0.804982658	
CO ₂	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		
H ₂ S	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		
O ₂ F Factor (dry)	8688	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O ₂ 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
CO ₂ F Factor	1030	DSCF of CO ₂ /MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	11.85	volume % CO ₂ in flue gas @ 0% O ₂
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		FDEP Permit Limits
Date	3/21/95	3/21/95	3/21/95	3/21/95		
Start Time	9:01	9:01	11:22	13:00		
Stop Time	10:10	10:10	12:22	14:04		
Turbine/Compressor Operation					<i>Averages</i>	
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 EFS/SSCO



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

AUG 14 1987

OFFICE OF
AIR AND WASTE

MEMORANDUM

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

FROM: John S. Rasnic, Chief *John S. Rasnic*
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 60.354(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 schedule Regional Offices issue for natural gas be no less stringent than the following: sulfur content should

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

TO 89195413470

P007/007

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 60.333(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.

09 07-92 11:45AM FROM EPA FFS/SSCO TO 09195413170

PC36/007

be bi-monthly, followed by quarterly, then semiannual, given at least six months of data demonstrating little variability in sulfur content and compliance with 40.000 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 NOx 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 SSCO for consultation on the appropriate fuel monitoring schedule. However, Regions are not required to send the request itself to GOCO for approval.

If you have any questions, please contact Sally K. Farnell at FTS 382-2875.

Attachment

- cc: John Cranshaw
- George Walsh
- Robert Ajax
- Erin Salo



Florida Gas Transmission Company

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

April 12, 1996

CERTIFIED

RECEIVED

APR 16 1996

BUREAU OF
AIR REGULATION

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 NO_x 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 No_x 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,

A handwritten signature in black ink, appearing to read "Allan Weatherford". The signature is fluid and cursive, with a large initial "A" and a long, sweeping underline.

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	Averages	FDEP Permit Limits
Date	7/25/95	7/25/95	7/25/95		
Start Time	8:30	10:10	11:35		
Stop Time	9:44	11:10	12:35		
Turbine/Compressor Operation					
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 cmprsr thrupt 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 Pressure ("Hg)	29.89	29.92	29.93	29.91	
Temperature (°F): Dry bulb	80.5	88.5	90	86	
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
 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/ft ³)	% volume		Component Gross Btu/lb	Weight Fract. Btu	Gross Heating Value (Btu/SCF)	Volume Fract. Btu
				x Density	weight %				
Hydrogen		2.016	0.0053	0.0000	0.0000	61100	0.00	325.0	0
Oxygen		32.000	0.0846	0.0000	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
CO ₂	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
H ₂ S		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				
Oxygen	32.000	0	0	0.00	0.0000				0
Nitrogen	28.016	0	0	0.38	10.7581			0.637383014	
CO ₂	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		
H ₂ S	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

O ₂ F Factor (dry)	8676	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O ₂ 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
CO ₂ F Factor	1024	DSCF of CO ₂ /MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	11.80	volume % CO ₂ in flue gas @ 0% O ₂
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 SPS/SSCO



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

AUG 14 1987

OFFICE OF
AIR AND WATER

MEMORANDUM

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

FROM: John B. Rasnic, Chief *John B. Rasnic*
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 60.354(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

05-07-92 11:45AM FROM SPA PPS/SSCO

TO 89195410470

P007/007

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 60.333(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 hereinafter, 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.

05 07-92 11:45AM FROM EPA FTS/SSCO

TO 29195413(70

PG.06/007

be bi-monthly, followed by quarterly, then semiannual, given at least six months of data demonstrating little variability in sulfur content and compliance with 160.000 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 SSCO for consultation on the appropriate fuel monitoring schedule. However, Regions are not required to send the request itself to GACD for approval.

If you have any questions, please contact Sally K. Farnell at FTS 182-2875.

Attachment

- cc: John Cranshaw
- George Walsh
- Robert Ajax
- Earl Salo

Memorandum

Florida Department of Environmental Protection

CH
TO: Clair Fancy / Howard Rhodes
THROUGH: A. A. Linero *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 ^{2 of} 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, Florida 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

RECEIVED

AUG 6 1996

BUREAU OF
AIR REGULATION

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. 1996

Personally Known _____ or Produced Identification _____

Type of Identification Produced _____

(SEAL)

Imas Kennedy

AIR CONSTRUCTION PERMIT AMENDMENTS STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT Permit No: 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 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 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 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 60a-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 of 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

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

