



Lawton Chiles
Governor

Florida Department of Environmental Protection

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

Virginia B. Wetherell
Secretary

September 17, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Allan Weatherford
Compliance Environmentalist
Florida Gas Transmission Company
P. O. Box 94500
Maitland, Florida 32794-5100

Dear Mr. Weatherford:

Re: Request for Amendments and Extensions to Air Construction
Permits AC57-188869, AC67-189220, AC20-189438, AC62-189439,
AC04-189454, AC42-189455, AC48-189456, AC05-189655, and
AC56-189457

The Department is in receipt of your letter dated June 29, 1993, requesting to extend the expiration date and to change the engine horsepower (HP) capacity, fuel consumption and heat input at various compressor stations. The Department has reviewed this request and has determined to amend the above mentioned permits as requested since there is no increase in permitted emission levels (lbs/hr and tons/yr).

The following changes are allowed by the Department:

COMPRESSOR STATION NO. 12 - SANTA ROSA COUNTY:

Description

FROM: For the construction of one 4,000 bhp natural gas fired engine to be located at the Florida Gas Transmission facility in Munson, Santa Rosa County, Florida. The UTM coordinates are Zone 16, 510.83 km East and 3419.03 km North.

TO: For the construction of one 4,100 bhp natural gas fired engine to be located at the Florida Gas Transmission facility in Munson, Santa Rosa County, Florida. The UTM coordinates are Zone 16, 510.83 km East and 3419.03 km North.

Specific Condition No. 1

FROM: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 17.6 | 77.2 | 2.0 g/bhp-hr |
| Carbon Monoxide | 22.1 | 96.6 | 2.5 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 8.8 | 38.6 | 1.0 g/bhp-hr |
| Particulate Matter (TSP) | 0.14 | 0.61 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.14 | 0.61 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.8 | 3.5 | 10 gr/100scf |

TO: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 17.6 | 77.2 | 1.95 g/bhp-hr |
| Carbon Monoxide | 22.1 | 96.6 | 2.44 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 8.8 | 38.6 | 0.97 g/bhp-hr |
| Particulate Matter (TSP) | 0.14 | 0.61 | 4.03 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.14 | 0.61 | 4.03 lbs/MMscf |
| Sulfur Dioxide | 0.8 | 3.5 | 8.06 gr S/100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 27,810 scf/hr.
- Maximum heat input shall not exceed 29.20 MMBtu/hr.

TO: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 34,525 scf/hr.
- Maximum heat input shall not exceed 36.25 MMBtu/hr.

COMPRESSOR STATION NO. 13 - WASHINGTON COUNTY:

Description

FROM: For the construction of one 2,400 bhp natural gas fired engine to be located 9 miles south of Caryville on CR 284. The UTM coordinates are Zone 16, 610.69 km East and 3394.28 km North.

TO: For the construction of one 2,700 bhp natural gas fired engine to be located at the Florida Gas Transmission facility in Caryville, Washington County, Florida. The UTM coordinates are Zone 16, 610.69 km East and 3394.28 km North.

Specific Condition No. 1

FROM: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 2.0 g/bhp-hr |
| Carbon Monoxide | 11.1 | 48.7 | 2.1 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 2.6 | 11.6 | 0.5 g/bhp-hr |
| Particulate Matter (TSP) | 0.08 | 0.4 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.08 | 0.4 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.46 | 2.0 | 10 gr/100scf |

TO: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 1.78 g/bhp-hr |
| Carbon Monoxide | 11.1 | 48.7 | 1.87 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 2.6 | 11.6 | 0.44 g/bhp-hr |
| Particulate Matter (TSP) | 0.08 | 0.4 | 3.87 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.08 | 0.4 | 3.87 lbs/MMscf |
| Sulfur Dioxide | 0.46 | 2.0 | 7.74 gr 8/100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 16,154 scf/hr.
- Maximum heat input shall not exceed 16.80 MMBtu/hr.

TO: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 20,856 scf/hr.
- Maximum heat input shall not exceed 21.69 MMBtu/hr.

COMPRESSOR STATION NO. 14 - GADSDEN COUNTY:

Description

FROM: For the construction of one 2,400 bhp natural gas fired engine to be located 8 miles southwest of Quincy on SR 65. The UTM coordinates are Zone 16, 719.97 km East and 3377.39 km North.

TO: For the construction of one 2,700 bhp natural gas fired engine to be located at the Florida Gas Transmission facility in Quincy, Gadsden County, Florida. The UTM coordinates are Zone 16, 719.97 km East and 3377.39 km North.

Specific Condition No. 1

FROM: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 2.0 g/bhp-hr |
| Carbon Monoxide | 11.1 | 48.7 | 2.1 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 2.6 | 11.6 | 0.5 g/bhp-hr |
| Particulate Matter (TSP) | 0.08 | 0.4 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.08 | 0.4 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.46 | 2.0 | 10 gr/100scf |

TO: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|------------------|---------------|----------------|------------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 1.78 g/bhp-hr |
| Carbon Monoxide | 11.1 | 48.7 | 1.87 g/bhp-hr |

| | | | |
|---|------|------|------------------|
| Volatile Organic Compounds (non-methane) | 2.6 | 11.6 | 0.44 g/bhp-hr |
| Particulate Matter (TSP) | 0.08 | 0.4 | 3.87 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.08 | 0.4 | 3.87 lbs/MMscf |
| Sulfur Dioxide | 0.46 | 2.0 | 7.74 gr S/100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 16,154 scf/hr.
- Maximum heat input shall not exceed 16.80 MMBtu/hr.

TO: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 20,856 scf/hr.
- Maximum heat input shall not exceed 21.69 MMBtu/hr.

COMPRESSOR STATION NO. 18 - ORANGE COUNTY:

FROM: For the construction of one 2,400 bhp natural gas fired engine to be located at 7990 Steer Lake Road. The UTM coordinates are Zone 17, 451.86 km East and 3154.79 km North.

TO: For the construction of one 2,700 bhp natural gas fired engine to be located at the Florida Gas Transmission facility in Orlando, Orange County, Florida. The UTM coordinates are Zone 16, 451.86 km East and 3154.79 km North.

Specific Condition No. 1

FROM: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| Pollutant | lbs/hr | tons/yr | Emission Factor |
|-----------------|--------|---------|-----------------|
| Nitrogen Oxides | 10.6 | 46.3 | 2.0 g/bhp-hr |
| Carbon Monoxide | 11.1 | 48.7 | 2.1 g/bhp-hr |

| | | | |
|---|-------|------|--------------|
| Volatile Organic Compounds (non-methane) | 2.6 | 11.6 | 0.5 g/bhp-hr |
| Particulate Matter (TSP) | 0.08 | 0.4 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.08 | 0.4 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.476 | 2.2 | 10 gr/100scf |

TO: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| Pollutant | lbs/hr | tons/yr | Emission Factor |
|---|--------|---------|------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 1.78 g/bhp-hr |
| Carbon Monoxide | 11.1 | 48.7 | 1.87 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 2.6 | 11.6 | 0.44 g/bhp-hr |
| Particulate Matter (TSP) | 0.08 | 0.4 | 3.95 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.08 | 0.4 | 3.95 lbs/MMscf |
| Sulfur Dioxide | 0.476 | 2.2 | 7.90 gr S/100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 16,311 scf/hr.
- Maximum heat input shall not exceed 16.80 MMBtu/hr.

TO: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 20,640 scf/hr.
- Maximum heat input shall not exceed 21.26 MMBtu/hr.

COMPRESSOR STATION NO. 19 - BREVARD COUNTY:

Description

FROM: For the construction of two 2,500 bhp natural gas fired engines to be located 6 miles west-southwest of Melbourne Regional Airport. The UTM coordinates are Zone 17, 528.67 km East and 3101.64 km North.

TO: For the construction of two 2,600 bhp natural gas fired engine to be located at the Florida Gas Transmission facility in Melbourne, Brevard County, Florida. The UTM coordinates are Zone 17, 528.67 km East and 3101.64 km North.

Specific Condition No. 1

FROM: The maximum allowable emissions from each engine shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 11.0 | 48.3 | 2.0 g/bhp-hr |
| Carbon Monoxide | 15.4 | 67.6 | 2.8 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 9.4 | 41.0 | 1.7 g/bhp-hr |
| Particulate Matter (TSP) | 0.09 | 0.4 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.09 | 0.4 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.51 | 2.2 | 10 gr/100scf |

TO: The maximum allowable emissions from each engine shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 11.0 | 48.3 | 1.92 g/bhp-hr |
| Carbon Monoxide | 15.4 | 67.6 | 2.69 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 9.4 | 41.0 | 1.64 g/bhp-hr |
| Particulate Matter (TSP) | 0.09 | 0.4 | 3.90 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.09 | 0.4 | 3.90 lbs/MMscf |
| Sulfur Dioxide | 0.51 | 2.2 | 7.80 gr S/100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for these natural gas compressor engines shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 17,718 scf/hr per engine.
- Maximum heat input shall not exceed 36.50 MMBtu/hr for both engines.

TO: The permitted operating parameters and utilization rates for these natural gas compressor engines shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 22,703 scf/hr per engine.
- Maximum heat input shall not exceed 46.77 MMBtu/hr for both engines.

COMPRESSOR STATION NO. 15 - TAYLOR COUNTY:

Specific Condition No. 1

FROM: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 17.6 | 77.2 | 2.0 g/bhp-hr |
| Carbon Monoxide | 22.0 | 96.6 | 2.5 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 8.8 | 38.6 | 1.0 g/bhp-hr |
| Particulate Matter (TSP) | 0.13 | 0.6 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.13 | 0.6 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.75 | 3.3 | 10 gr/100scf |

TO: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 17.6 | 77.2 | 2.0 g/bhp-hr |
| Carbon Monoxide | 22.0 | 96.6 | 2.5 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 8.8 | 38.6 | 1.0 g/bhp-hr |
| Particulate Matter (TSP) | 0.13 | 0.6 | 4.23 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.13 | 0.6 | 4.23 lbs/MMscf |
| Sulfur Dioxide | 0.75 | 3.3 | 8.53 gr S/100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 26,154 scf/hr.
- Maximum heat input shall not exceed 27.20 MMBtu/hr.

TO: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed **30,943** scf/hr.
- Maximum heat input shall not exceed **32.18** MMBtu/hr.

COMPRESSOR STATION NO. 16 - BRADFORD COUNTY:

Specific Condition No. 1

FROM: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 17.6 | 77.2 | 2.0 g/bhp-hr |
| Carbon Monoxide | 22.0 | 96.6 | 2.5 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 8.8 | 38.6 | 1.0 g/bhp-hr |
| Particulate Matter (TSP) | 0.13 | 0.6 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.13 | 0.6 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.75 | 3.3 | 10 gr/100scf |

TO: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|---------------------------------|
| Nitrogen Oxides | 17.6 | 77.2 | 2.0 g/bhp-hr |
| Carbon Monoxide | 22.0 | 96.6 | 2.5 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 8.8 | 38.6 | 1.0 g/bhp-hr |
| Particulate Matter (TSP) | 0.13 | 0.6 | 3.90 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.13 | 0.6 | 3.90 lbs/MMscf |
| Sulfur Dioxide | 0.75 | 3.3 | 7.80 gr 8 /100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 26,408 scf/hr.
- Maximum heat input shall not exceed 27.20 MMBtu/hr.

TO: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 33,833 scf/hr.
- Maximum heat input shall not exceed 34.85 MMBtu/hr.

COMPRESSOR STATION NO. 17 - MARION COUNTY

Specific Condition No. 1

FROM: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 2.0 g/bhp-hr |
| Carbon Monoxide | 14.8 | 64.9 | 2.8 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 9.0 | 39.4 | 1.7 g/bhp-hr |
| Particulate Matter (TSP) | 0.09 | 0.4 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.09 | 0.4 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.49 | 2.2 | 10 gr/100scf |

TO: The maximum allowable emissions from this source shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 2.0 g/bhp-hr |
| Carbon Monoxide | 14.8 | 64.9 | 2.8 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 9.0 | 39.4 | 1.7 g/bhp-hr |
| Particulate Matter (TSP) | 0.09 | 0.4 | 4.13 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.09 | 0.4 | 4.13 lbs/MMscf |
| Sulfur Dioxide | 0.49 | 2.2 | 8.27 gr S/100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 17,010 scf/hr.
- Maximum heat input shall not exceed 17.52 MMBtu/hr.

TO: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed **20,569** scf/hr.
- Maximum heat input shall not exceed **21.19** MMBtu/hr.

COMPRESSOR STATION NO. 20 - ST. LUCIE COUNTY

FROM: The maximum allowable emissions from this unit shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|------------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 2.0 g/bhp-hr |
| Carbon Monoxide | 14.8 | 64.9 | 2.8 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 9.0 | 39.4 | 1.7 g/bhp-hr |
| Particulate Matter (TSP) | 0.09 | 0.4 | 5 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.09 | 0.4 | 5 lbs/MMscf |
| Sulfur Dioxide | 0.49 | 2.0 | 10 gr/100scf |

TO: The maximum allowable emissions from this unit shall not exceed the emission rates as follows:

| <u>Pollutant</u> | <u>lbs/hr</u> | <u>tons/yr</u> | <u>Emission Factor</u> |
|---|---------------|----------------|-------------------------|
| Nitrogen Oxides | 10.6 | 46.3 | 2.0 g/bhp-hr |
| Carbon Monoxide | 14.8 | 64.9 | 2.8 g/bhp-hr |
| Volatile Organic Compounds (non-methane) | 9.0 | 39.4 | 1.7 g/bhp-hr |
| Particulate Matter (TSP) | 0.09 | 0.4 | 4.13 lbs/MMscf |
| Particulate Matter (PM ₁₀) | 0.09 | 0.4 | 4.13 lbs/MMscf |
| Sulfur Dioxide | 0.49 | 2.0 | 8.27 gr 5/100scf |

Specific Condition No. 5

FROM: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed 17,010 scf/hr.
- Maximum heat input shall not exceed 17.52 MMBtu/hr.

Mr. Allan Weatherford
Request for Amendments and Extensions
Page 12

TO: The permitted operating parameters and utilization rates for this natural gas compressor engine shall not exceed the values stated in the application. The parameters include, but are not limited to:

- Maximum natural gas consumption shall not exceed **20,569** scf/hr.
- Maximum heat input shall not exceed **21.19** MMBtu/hr.

Expiration Date

The expiration date of the above mentioned permit will be changed from June 30, 1993, to **December 31, 1993.**

This letter must be attached to the above mentioned permits and shall become a part of each permit. If you have any questions, please call Teresa Heron at (904) 488-1344.

Sincerely,



Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/TH/plm

Attachment to be Incorporated:

Mr. Allan Weatherford's letter of June 29, 1993

cc: E. Middleswart, NWD
Robert Leetch, NED
Charles Collins, CD
Isidore Goldman, SED
Duane Pierce, FGTC
Barry Andrews, ENSR



ENSR Consulting
and Engineering

2809 West Mall Drive
Florence, AL 35630
(205) 767-1210
FAX (205) 767-1211

December 3, 1993

Mr. Clair Fancy, P.E.
Chief, Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blairstone Road
Tallahassee, FL 32399-2400

RECEIVED
DEC - 6 1993
Division of Air
Resources Management

Dear Clair:

**RE: Request for Amendments to Permits
Florida Gas Transmission Company**

Station 12 - Permit No. AC57-188869
Munson, Santa Rosa County, Florida

Station 13 - Permit No. AC67-189220
Caryville, Washington county, Florida

Station 14 - Permit No. AC20-189438
Quincy, Gadsden County, Florida

Station 15 - Permit No. AC62-189439
Perry, Taylor County, Florida

Station 16 - Permit No. AC04-189454
Brooker, Bradford County, Florida

Station 17 - Permit No. AC42-189455
Salt Springs, Marion County, Florida

Station 18 - Permit No. AC48-189456
Orlando, Orange County, Florida

Station 19 - Permit No. AC05-189665
Melbourne, Brevard County, Florida

Station 20 - Permit No. AC56-189457
Ft. Pierce, St. Lucie County, Florida



December 3, 1993
Mr. Clair Fancy
Page 2

This letter is in response to our recent conversation regarding a previous request by Florida Gas Transmission Company (FGTC) to amend the above permits to include Method 3A instead of Method 3.

On June 29, 1993, FGTC requested that the permits for the compressor engines referenced in this letter be amended to adjust the horsepower ratings and heat input rates. On September 9, 1993 (letter attached), FGTC further requested that specific condition 8 in each of the permits be amended to replace Method 3 with 3A, and that the SO₂ emission limits be clarified to base SO₂ emissions on the fuels sulfur content.

On September 17, 1993 the Division of Air Resources Management (DARM) responded to FGTC's request with a letter amending the permits. Included were the amendments for horsepower ratings, heat input, restrictions; and clarification of sulfur as the basis for SO₂ emissions.

It has recently come to FGTC's attention through the process of obtaining operating permits from the district offices that the request to replace Method 3 with Method 3A was not included in DARM's response. Until now it was assumed that the request had been included in the September 17, 1993 letter of amendment.

Accordingly, FGTC requests that DARM evaluate the request for the amendment to the testing method. This should not require an alternate sampling procedure since there is no regulatory requirement for determining the oxygen and carbon dioxide concentrations from compressor station engines.

Your expedited response to this request is appreciated since it relates to the issuance of our operating permits. Should you need additional information or have any questions please contact Mr. Alan Weatherford with FGTC at (407) 875-5816.

Sincerely,

A handwritten signature in cursive script that reads "Barry Andrews".

Barry D. Andrews, P.E.
Manager, Air Quality Services

cc : Alan Weatherford

Enclosure



Florida Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

December 9, 1993

Mr. Allan Weatherford
Compliance Environmentalist
Florida Gas Transmission Company
P.O. Box 94500
Maitland, Florida 32794-5100

Dear Mr. Weatherford:

RE: Request for Amendments and Extensions to Air Construction Permits AC 57-188869, AC 67-189220, AC 20-189438, AC 62-189439, AC 04-189454, AC 42-189455, AC 48-189456, AC 05-189655, and AC 56-189457
Phase II - Florida Gas Transmission Company

The Department is in receipt of Mr. Barry Andrew's letter dated December 3, 1993, on behalf of your company, requesting to amend the above permits to use EPA Method 3A instead of EPA Method 3 for Gas Analysis. The Department has reviewed this request and has determined to amend the above mentioned permits as requested.

Specific Condition No. 8 of the above mentioned permits will be amended as follows:

SPECIFIC CONDITION NO. 8

FROM:

8. Compliance with the NO_x, SO₂, CO, VE, and VOC standards shall be determined by the following reference methods as described in 40 CFR 60, Appendix A (July 1, 1988) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- Method 3. Gas Analysis
- Method 7E. Determination of Nitrogen Oxides Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- Method 25. Determination of Total Gaseous Nonmethane Organic Emissions as Carbon

Mr. Allan Weatherford
December 9, 1993
Page Two

TO:

8. Compliance with the NO_x, SO₂, CO, VE, and VOC standards shall be determined by the following reference methods as described in 40 CFR 60, Appendix A (July 1, 1992) and adopted by reference in F.A.C. Rule 17-2.700.

- Method 1. Sample and Velocity Traverses
- Method 2. Volumetric Flow Rate
- **Method 3A. Gas Analysis**
- Method 7E. Determination of Nitrogen Oxides Emissions from Stationary Sources
- Method 9. Determination of the Opacity of the Emissions from Stationary Sources
- Method 10. Determination of the Carbon Monoxide Emission from Stationary Sources
- **Method 25A. Determination of Total Gaseous Organic Concentrations Using a Flame Ionization Analyses**

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the applicant of the amendment request/application and the parties listed below must be filed within 14 days of receipt of this amendment. Petitions filed by other persons must be filed within 14 days of the amendment issuance or within 14 days of their receipt of this amendment, whichever occurs first. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

- (a) The name, address and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;

Mr. Allan Weatherford
December 9, 1993
Page Three

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action;

(g) A statement of the relief sought by 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 amendment. Persons whose substantial interests will be affected by any decision of the Department with regard to the request/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 amendment in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

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

Sincerely,



Howard Rhodes
Director
Division of Air Resources
Management

Attachment to be Incorporated

Mr. Barry Andrew's letter of December 3, 1993.

cc: E. Middleswart, NWD
Robert Leetch, NED
Charles Collins, CD
Isidore Goldman, SED
Duane Pierce, FGTC
Barry Andrews, ENSR

Mr. Allan Weatherford
December 9, 1993
Page Four

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this AMENDMENT and all copies were mailed by certified mail before the close of business on 12/21/93 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.

Barbara J. Boutwell
Clerk

12/21/93
Date



Florida Gas Transmission Company

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

June 29, 1993

VIA FEDERAL EXPRESS
(overnight delivery)

Mr. Clair Fancy, P.E.
Chief, Bureau of Air Regulation
Florida Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

**RE: Request for Amendments and Extensions to Air
Construction Permits**

Permit No. AC57-188869
Florida Gas Transmission Company, Station 12
Munson, Santa Rosa County, Florida

Permit No. AC67-189220
Florida Gas Transmission Company, Station 13
Caryville, Washington County, Florida

Permit No. AC20-189438
Florida Gas Transmission Company, Station 14
Quincy, Gadsden County, Florida

Permit No. AC62-189439
Florida Gas Transmission Company, Station 15
Perry, Taylor County, Florida

Permit No. AC04-189454
Florida Gas Transmission Company, Station 16
Brooker, Bradford County, Florida

Permit No. AC42-189455
Florida Gas Transmission Company, Station 17
Salt Springs, Marion County, Florida

Permit No. AC48-189456
Florida Gas Transmission Company, Station 18
Orlando, Orange County, Florida

Permit No. AC05-189665
Florida Gas Transmission Company, Station 19
Melbourne, Brevard County, Florida

Permit No. AC56-189457
Florida Gas Transmission Company, Station 20
Ft. Pierce, St. Lucie County, Florida

On May 27, 1993, Florida Gas Transmission Company (FGT) submitted Certificates of Completion of Construction to the appropriate district offices to obtain operating permits for

RECEIVED
MAIL ROOM
1993 JUN 30 11:19:19

← This file contains all the attachments related to this correspondence.

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

① ~~Jean~~ - file
② Pally

1. ~~Preston Lewis, P.E. III~~
2. ARM BAR Permit
3. T L II
- 4.

Remarks:

RECEIVED

JUN 11 1993

Division of Air
Resources Management

From:

Alan Zahn

Date

6/10/93

Phone

MAY 27 '93 12:45

FROM ENRON ENVIR/ROW GROUP

TO 914078755892

PAGE.003

STATION 18

ORLANDO, FLORIDA

| Station | Model Run Factor | MAXIMUM 1-HR CONCENTRATION (ug/m**3) | | | | | Maximum Emission (lb/hr) | | | | |
|--------------|------------------|---|--------|--------|--------------|-------|--------------------------|-------|------|--------------|------|
| | | NOx | CO | VOCs | Particulates | SO2 | NOx | CO | VOCs | Particulates | SO2 |
| 18 Permitted | 4.843 | 51.336 | 53.757 | 12.592 | 0.387 | 2.276 | 10.60 | 11.10 | 2.60 | 0.08 | 0.47 |
| 18 Revised | 3.888 | 46.267 | 48.600 | 11.586 | 0.428 | 2.100 | 11.90 | 12.50 | 2.98 | 0.11 | 0.54 |

Model Run Factor is maximum 1-hr concentration based on emission of 1 lb/hr.

Maximum 1-hr concentrations calculated as (Model Run Factor) X (Maximum Emission).

*** SCREEN-1.1 MODEL RUN ***
*** VERSION DATED 88300 ***

Station 18--Permit--Simple Terrain, no Downwash

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
EMISSION RATE (G/S) = .1260
STACK HEIGHT (M) = 12.19
STK INSIDE DIAM (M) = .44
STK EXIT VELOCITY (M/S) = 23.49
STK GAS EXIT TEMP (K) = 560.93
AMBIENT AIR TEMP (K) = 293.00
RECEPTOR HEIGHT (M) = .00
IOPT (1=URB,2=RUR) = 2
BUILDING HEIGHT (M) = .00
MIN HORIZ BLDG DIM (M) = .00
MAX HORIZ BLDG DIM (M) = .00

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF .00 M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

| DIST (M) | CONC (UG/M**3) | STAB | U10M (M/S) | USTK (M/S) | MIX HT (M) | PLUME HT (M) | SIGMA Y (M) | SIGMA Z (M) | DWASH |
|----------|----------------|------|------------|------------|------------|--------------|-------------|-------------|-------|
| 1. | .0000 | 0 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 100. | 1.950 | 2 | 5.0 | 5.1 | 1600.0 | 26.9 | 19.6 | 11.1 | NO |
| 200. | 4.736 | 3 | 8.0 | 8.2 | 2560.0 | 21.3 | 23.8 | 14.3 | NO |
| 300. | 4.755 | 3 | 5.0 | 5.1 | 1600.0 | 26.8 | 34.5 | 20.8 | NO |
| 400. | 4.332 | 3 | 3.0 | 3.1 | 960.0 | 36.6 | 45.2 | 27.3 | NO |
| 500. | 4.146 | 4 | 5.0 | 5.2 | 1600.0 | 26.7 | 36.4 | 18.8 | NO |
| 600. | 3.951 | 4 | 4.0 | 4.1 | 1280.0 | 30.3 | 43.0 | 21.8 | NO |

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
268. 4.843 3 5.0 5.1 1600.0 26.8 31.3 18.9 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** SUMMARY OF SCREEN MODEL RESULTS ***

| CALCULATION PROCEDURE | MAX CONC (UG/M**3) | DIST TO MAX (M) | TERRAIN HT (M) |
|-----------------------|--------------------|-----------------|----------------|
| SIMPLE TERRAIN | 4.843 | 268. | 0. |

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

*** SCREEN-1.1 MODEL RUN ***
*** VERSION DATED 88300 ***

Station 18--Actual--Simple Terrain, no Downwash

SIMPLE TERRAIN INPUTS:

SOURCE TYPE = POINT
EMISSION RATE (G/S) = .1260
STACK HEIGHT (M) = 15.24
STK INSIDE DIAM (M) = .66
STK EXIT VELOCITY (M/S) = 10.35
STK GAS EXIT TEMP (K) = 560.93
AMBIENT AIR TEMP (K) = 293.00
RECEPTOR HEIGHT (M) = .00
IOPT (1=URB,2=RUR) = 2
BUILDING HEIGHT (M) = .00
MIN HORIZ BLDG DIM (M) = .00
MAX HORIZ BLDG DIM (M) = .00

*** FULL METEOROLOGY ***

*** SCREEN AUTOMATED DISTANCES ***

*** TERRAIN HEIGHT OF .00 M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

| DIST (M) | CONC (UG/M**3) | STAB | U10M (M/S) | USTK (M/S) | MIX HT (M) | PLUME HT (M) | SIGMA Y (M) | SIGMA Z (M) | DWASH |
|----------|----------------|------|------------|------------|------------|--------------|-------------|-------------|-------|
| 1. | .0000 | 0 | .0 | .0 | .0 | .0 | .0 | .0 | |
| 100. | 1.005 | 1 | 3.0 | 3.1 | 960.0 | 39.4 | 27.4 | 15.0 | NO |
| 200. | 3.673 | 2 | 5.0 | 5.1 | 1600.0 | 29.7 | 36.4 | 20.7 | NO |
| 300. | 3.888 | 3 | 5.0 | 5.2 | 1600.0 | 29.6 | 34.5 | 20.7 | NO |
| 400. | 3.728 | 3 | 3.0 | 3.1 | 960.0 | 39.1 | 45.2 | 27.3 | NO |
| 500. | 3.493 | 3 | 3.0 | 3.1 | 960.0 | 39.1 | 55.2 | 33.1 | NO |

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:
300. 3.888 3 5.0 5.2 1600.0 29.6 34.5 20.7 NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*** SUMMARY OF SCREEN MODEL RESULTS ***

| CALCULATION PROCEDURE | MAX CONC (UG/M**3) | DIST TO MAX (M) | TERRAIN HT (M) |
|-----------------------|--------------------|-----------------|----------------|
| SIMPLE TERRAIN | 3.888 | 300. | 0. |

** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **

**Air Emissions Estimates for Permitting
Station 18 Orlando, FL**

| | NOX (TPY) | CO (TPY) | NMHC (TPY) | SO2 (TPY) | PM (TPY) |
|--|---------------|---------------|---------------|--------------|-------------|
| Engines | | | | | |
| Compressor Engine 1 | 212.47 | 27.04 | 8.50 | 1.79 | 0.31 |
| Compressor Engine 2 | 212.47 | 27.04 | 8.50 | 1.79 | 0.31 |
| Compressor Engine 3 | 212.47 | 27.04 | 8.50 | 1.79 | 0.31 |
| Compressor Engine 4 | 212.47 | 27.04 | 8.50 | 1.79 | 0.31 |
| Compressor Engine 5 | 46.36 | 48.68 | 11.59 | 2.09 | 0.41 |
| Emergency Generator Engine No. 1 | 1.57 | 0.15 | 0.04 | 0.01 | 0.00 |
| Emergency Generator Engine No. 2 | 1.94 | 0.18 | 0.09 | 0.01 | 0.00 |
| Air Compressor Engine No. 1 | 0.07 | 0.39 | 0.00 | 0.00 | 0.00 |
| Tanks | | | | | |
| Oil & Water Separator No. 1 | 0.00 | 0.00 | 0.81 | 0.00 | 0.00 |
| Oil & Water Separator No. 2 | 0.00 | 0.00 | 0.81 | 0.00 | 0.00 |
| Pipeline Condensate Tank No. 1 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 |
| Lube Oil Storage Tank No. 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Waste Oil Tank No. 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gasoline Tank No. 1 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 |
| Kerosene Tank No. 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Diesel Tank No. 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Diesel Tank No. 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cleaning Machines | | | | | |
| Parts Cleaner No. 1 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 |
| Blowdown | | | | | |
| ESD and Maintenance Blowdowns | 0.00 | 0.00 | 1.64 | 0.00 | 0.00 |
| Fugitive Emissions | | | | | |
| Fugitive Emissions | 0.00 | 0.00 | ? | 0.00 | 0.00 |
| Total Emissions (Except for indicated item) | 899.82 | 157.56 | 49.43 | 9.27 | 1.65 |

Compressor Station Number 18
 Name: Orlando
 County: Orange
 Nearest City: Orlando
 Compressor Supervisor: Wayne Daniels
 Mailing Address: Box 616898
 Orlando, Florida 32861-6898
 Telephone: 407-225-4342 Fax 407-578-2308
 Latitude: 28-31-15
 Longitude: 81-29-31
 UTM Zone: 17
 UTM Easting: 451.86 km
 UTM Northing: 3,154.79 km
 Elevation (ft): 103

CS18.WK1

Phase I Engine Characteristics

| | 1801 | 1802 | 1803 | 1804 |
|-------------------------------------|-------------|-------------|-------------|-------------|
| Engine Identification | | | | |
| Permit Number | | | | |
| Serial Number | G-2516 | G-2457 | G-2458 | G-2778 |
| Operating Time | | | | |
| Hours/Day | 24 | 24 | 24 | 24 |
| Days/Week | 7 | 7 | 7 | 7 |
| Weeks/Year | 52 | 52 | 52 | 52 |
| Engine Type | Recip | Recip | Recip | Recip |
| Date of Installation | 1959 | 1959 | 1959 | 1968 |
| Engine Make | Worthington | Worthington | Worthington | Worthington |
| Engine Model | SEHG-8 | SEHG-8 | SEHG-8 | SEHG-8 |
| Horsepower Rating | 2000 | 2000 | 2000 | 2000 |
| Air Charging | Turbo. | Turbo. | Turbo. | Turbo. |
| Exhaust Temperature (F) | 600 | 600 | 600 | 600 |
| Mass Flow Rate (lbs/hr) (a) | 28172 | 28172 | 28172 | 28172 |
| Volumetric Flow Rate (acfm) | 11637 | 11637 | 11637 | 11637 |
| Volumetric Flow Rate (dscfm) | 5333 | 5333 | 5333 | 5333 |
| Exit Velocity (ft/s) | 95.96 | 95.96 | 95.96 | 95.96 |
| Water Vapor Content (%) | 8 | 8 | 8 | 8 |
| Ave. Fuel Consumption (MMCF/Hr) (b) | 0.0148 | 0.0148 | 0.0148 | 0.0148 |
| Max. Fuel Consumption (MMCF/Hr) (b) | 0.0148 | 0.0148 | 0.0148 | 0.0148 |
| Specific Fuel Consump. (BTU/bhp-hr) | 6350 | 6350 | 6350 | 6350 |
| Maximum Heat Input (MMBTU/Hr) | 12 | 12 | 12 | 12 |
| Stack Height (ft) | 31.75 | 31.75 | 31.75 | 31.75 |
| Stack Diameter (in) | 19.25 | 19.25 | 19.25 | 19.25 |
| Stack to Building Offset (ft) | 17.00 | 17.00 | 17.00 | 17.00 |
| Building Height (ft) (c) | 31.75 | | | |
| Building Length (ft) (c) | 201'-3" | ← Same | ← Same | ← Same |
| Building Width (ft) (c) | 52'-8 1/4" | | | |

Phase I Fuel Characteristics

| | 1801 | 1802 | 1803 | 1804 |
|------------------------|--------|--------|--------|--------|
| Fuel Type | N.G. | N.G. | N.G. | N.G. |
| Heating Value (BTU/CF) | 1030 | 1030 | 1030 | 1030 |
| Heat Capacity (BTU/lb) | 22637 | 22637 | 22637 | 22637 |
| Density (lb/cubic ft) | 0.0455 | 0.0455 | 0.0455 | 0.0455 |
| Percent Sulfur (%) (d) | 0.031 | 0.031 | 0.031 | 0.031 |
| Percent Ash (%) | N/A | N/A | N/A | N/A |

Phase I Emissions Rates by Engine for Station 18
Engine Identification

| | 1 | 2 | 3 | 4 |
|-----------------------|--------|--------|--------|--------|
| Grams/BHP-Hour | | | | |
| NOX | 11.000 | 11.000 | 11.000 | 11.000 |
| CO | 1.400 | 1.400 | 1.400 | 1.400 |
| NMHC | 0.440 | 0.440 | 0.440 | 0.440 |
| SO2 (e) | 0.093 | 0.093 | 0.093 | 0.093 |
| PM (f) | 0.016 | 0.016 | 0.016 | 0.016 |
| Pounds/Hour | | | | |
| NOX | 48.51 | 48.51 | 48.51 | 48.51 |
| CO | 6.17 | 6.17 | 6.17 | 6.17 |
| NMHC | 1.94 | 1.94 | 1.94 | 1.94 |
| SO2 | 0.41 | 0.41 | 0.41 | 0.41 |
| PM | 0.07 | 0.07 | 0.07 | 0.07 |
| Tons/Year | | | | |
| NOX | 212.47 | 212.47 | 212.47 | 212.47 |
| CO | 27.04 | 27.04 | 27.04 | 27.04 |
| NMHC | 8.50 | 8.50 | 8.50 | 8.50 |
| SO2 | 1.79 | 1.79 | 1.79 | 1.79 |
| PM | 0.31 | 0.31 | 0.31 | 0.31 |

Phase I Emissions Rates for Total Station

| | | |
|-----------------------|--------|--|
| Grams/BHP-Hour | | |
| NOX | 11.000 | |
| CO | 1.400 | |
| NMHC | 0.440 | |
| SO2 | 0.093 | |
| PM | 0.016 | |
| Pounds/Hour | | |
| NOX | 194.04 | |
| CO | 24.70 | |
| NMHC | 7.78 | |
| SO2 | 1.63 | |
| PM | 0.29 | |
| Tons/Year | | |
| NOX | 849.90 | |
| CO | 108.17 | |
| NMHC | 34.00 | |
| SO2 | 7.16 | |
| PM | 1.25 | |

SOURCE CLASSIFICATION WITH RESPECT TO PSD

MAJOR SOURCE

Notes:

- (a) Wet mass flow (@ 60 F, 14.7 psi).
- (b) Based on heating value of fuel gas.
- (c) All engines enclosed in one building.
- (d) Percent by weight.
- (e) Based on 10 grains/SCF.
- (f) Based AP-42 factor of 5 lbs/MMSCF.

Compressor Station Number 18
 Name: Orlando
 County: Orange
 Nearest City: Orlando
 Compressor Supervisor: Wayne Daniels
 Mailing Address: Box 616898
 Orlando, Florida 32861-6898
 Telephone: 407-295-4342
 Latitude: 28-31-15
 Longitude: 81-29-31
 UTM Zone: 17
 UTM Easting: 451.86 km
 UTM Northing: 3,154.79 km
 Elevation (ft): 103

Phase II Engine Characteristics

Engine Identification 1805
 Permit Number
 Serial Number 49118
 Operating Time
 Hours/Day 24
 Days/Week 7
 Weeks/Year 52
 Engine Type Recip
 Date of Installation 1991
 Engine Make Cooper-Bessmer
 Engine Model G4VH-12
 Horsepower Rating 2400
 Air Charging Turbo
 Exhaust Temperature (F) 550
 Mass Flow Rate (lbs/hr) (a) 36860
 Volumetric Flow Rate (acfm) 19753.2
 Volumetric Flow Rate (dscfm) 7511
 Exit Velocity (ft/s) 89.29
 Water Vapor Content (%) 8
 Ave. Fuel Consumption (MMCF/Hr) (b) 0.0163
 Max. Fuel Consumption (MMCF/Hr) (b) 0.0163
 Specific Fuel Consump. (BTU/bhp-hr) 7000
 Maximum Heat Input (MMBTU/Hr) 16.8

Stack Height (ft) 50
 Stack Diameter (in) 26
 Stack to Building Offset (ft) 17.00
 Building Height (ft) (c) 31.75
 Building Length (ft) (c) ~~66.00~~
 Building Width (ft) (c) ~~48.00~~

*20'-3" } in same building with engines #1 - #4
 52'-8 1/4"*

Phase II Fuel Characteristics

Fuel Type N.G.
 Heating Value (BTU/CF) 1030
 Heat Capacity (BTU/lb) 22637
 Density (lb/cubic ft) 0.0455
 Percent Sulfur (%) (d) 0.031
 Percent Ash (%) N/A

30-Jul-92
CS18.WK1Phase II Emissions Rates by Engine for Station 18
Engine Identification

5

Grams/BHP-Hour

| | |
|---------|-------|
| NOX | 2.000 |
| CO | 2.100 |
| NMHC | 0.500 |
| SO2 (e) | 0.090 |
| PM (f) | 0.018 |

Pounds/Hour

| | |
|------|-------|
| NOX | 10.58 |
| CO | 11.11 |
| NMHC | 2.65 |
| SO2 | 0.48 |
| PM | 0.09 |

Tons/Year

| | |
|------|-------|
| NOX | 48.36 |
| CO | 48.68 |
| NMHC | 11.59 |
| SO2 | 2.09 |
| PM | 0.41 |

Phase II Emissions Rates for Total Station

Grams/BHP-Hour

| | |
|------|-------|
| NOX | 8.923 |
| CO | 1.581 |
| NMHC | 0.454 |
| SO2 | 0.092 |
| PM | 0.017 |

Pounds/Hour

| | |
|------|--------|
| NOX | 204.62 |
| CO | 35.81 |
| NMHC | 10.41 |
| SO2 | 2.11 |
| PM | 0.38 |

Tons/Year

| | |
|------|--------|
| NOX | 896.25 |
| CO | 158.84 |
| NMHC | 45.59 |
| SO2 | 9.24 |
| PM | 1.68 |

SOURCE CLASSIFICATION WITH RESPECT TO PSD

MAJOR SOURCE

Notes:

- (a) Wet mass flow (@ 60 F, 14.7 psi).
- (b) Based on heating value of fuel gas.
- (c) All engines enclosed in one building.
- (d) Percent by weight.
- (e) Based on 10 grains/SCF.
- (f) Based AP-42 factor of 5 lbs/MMSCF.

**Engine Emission Calculation Worksheet
Station 18; Orlando, FL****Emergency Generator Engine 1****Engine data**

| | |
|--|-----------------|
| Annual use (maximum); hr./yr. | 400 hr./yr. |
| Power; Hp | 170 Hp |
| Power; Btu/hr. (@ 8026 (Btu/hr.)/Hp) | 1364420 Btu/hr. |
| Fuel consumption; scf/hr. (@ 1040 Btu/scf) | 1312 scf/hr. |

Emission factors

| | |
|-----------------|----------------|
| NO _x | 21.0 g/Hp-hr. |
| CO | 2.0 g/Hp-hr. |
| NMHC | 0.5 g/Hp-hr. |
| SO ₂ | 0.1 grains/scf |
| PM | 5.0 lb/MMscf |

Calculated emissions

| | |
|-----------------|----------|
| NO _x | 1.57 TPY |
| CO | 0.15 TPY |
| NMHC | 0.04 TPY |
| SO ₂ | 0.01 TPY |
| PM | 0.00 TPY |

**Engine Emission Calculation Worksheet
Station 18; Orlando, FL**

Emergency Generator Engine 2

Engine data

| | |
|--|-----------------|
| Annual use (maximum); hr./yr. | 400 hr./yr. |
| Power; Hp | 200 Hp |
| Power; Btu/hr. (@ 8026 (Btu/hr.)/Hp) | 1605200 Btu/hr. |
| Fuel consumption; scf/hr. (@ 1040 Btu/scf) | 1543 scf/hr. |

Emission factors

| | |
|------|----------------|
| NOx | 22.0 g/Hp-hr. |
| CO | 2.0 g/Hp-hr. |
| NMHC | 1.0 g/Hp-hr. |
| SO2 | 0.1 grains/scf |
| PM | 5.0 lb/MMscf |

Calculated emissions

| | |
|------|----------|
| NOx | 1.94 TPY |
| CO | 0.18 TPY |
| NMHC | 0.09 TPY |
| SO2 | 0.01 TPY |
| PM | 0.00 TPY |

**Engine Emission Calculation Worksheet
Station 18: Orlando, FL****Air Compressor Engine 1****Engine data**

| | |
|--|----------------|
| Annual use (maximum); hr./yr. | 150 hr./yr. |
| Power; Hp | 52 Hp |
| Power; Btu/hr. (@ 8026 (Btu/hr.)/Hp) | 417352 Btu/hr. |
| Fuel consumption; scf/hr. (@ 1040 Btu/scf) | 401 scf/hr. |

Emission factors

| | |
|------|----------------|
| NOx | 8.0 g/Hp-hr. |
| CO | 45.0 g/Hp-hr. |
| NMHC | 0.5 g/Hp-hr. |
| SO2 | 0.1 grains/scf |
| PM | 5.0 lb/MMscf |

Calculated emissions

| | |
|------|----------|
| NOx | 0.07 TPY |
| CO | 0.39 TPY |
| NMHC | 0.00 TPY |
| SO2 | 0.00 TPY |
| PM | 0.00 TPY |

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

| | | |
|-------------------------------|-------------------------|------|
| TANK IDENTIFICATION NUMBER | Oil & Water Separator 1 | |
| EMISSION CONTROLS | None | |
| PERCENT EFFICIENCY | | 0 % |
| TANK PAINT COLOR | Black | |
| TANK DIAMETER (FT), D | | 10.0 |
| TANK HEIGHT (FT), H | | 15.0 |
| PAINT FACTOR, FsubP | | 1.58 |
| TANK CAPACITY (BBLs), VB | | 210 |
| TANK CAPACITY (GALLONS), V | | 8820 |
| ADJUSTMENT FACTOR FOR DIA., C | | 0.53 |

WEATHER DATA

| | | |
|---|---------|------|
| | Orlando | |
| AVG. DAILY TEMP. CHANGE (DEG F), DeltaT | | 20.0 |
| STORAGE TEMP. (DEG. F) | | 77.4 |
| AVG. ATM. PRESS. (PSIA), PsubA | | 14.7 |

PRODUCT PHYSICAL DATA

| | | |
|---|-----------------|-------|
| MATERIAL STORED | Oily Wastewater | |
| MOLECULAR WEIGHT (#/#MOLE) MsubV | | 53.00 |
| VAPOR PRESS. AT STG. TEMP. (DEG. F), P | | 2.80 |
| PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0) | | 1.00 |

THROUGHPUT DATA

| | | |
|--|--|-------|
| DAYS IN SERVICE, DsubS | | 365 |
| VAPOR SPACE HEIGHT (FT), VH | | 7.50 |
| TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT | | 21429 |
| FILLING RATE (BBLs/HR), FR | | 85.70 |
| NUMBER OF TURNOVERS FOR DAYS IN SERVICE, N | | 102.0 |
| TURNOVER FACTOR, KsubN | | 0.43 |

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP } -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 252 | 1378 | 1629 |
| TONS FOR DAYS SERVICE = | 0.13 | 0.69 | 0.81 |
| ANNUALIZED POUNDS = | 252 | 1378 | 1629 |
| ANNUALIZED TONS = | 0.13 | 0.69 | 0.81 |
| POUND/HR (AVG) = | 0.03 | 0.16 | 0.19 |
| MAXIMUM EMISSION RATE (#/HR) = | | | |

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

TANK IDENTIFICATION NUMBER

Oil & Water Separator 2

EMISSION CONTROLS

None

PERCENT EFFICIENCY

0 %

TANK PAINT COLOR

Black

TANK DIAMETER (FT), D

10.0

TANK HEIGHT (FT), H

15.0

PAINT FACTOR, FsubP

1.58

TANK CAPACITY (BBLs), VB

210

TANK CAPACITY (GALLONS), V

8820

ADJUSTMENT FACTOR FOR DIA., C

0.53

WEATHER DATA

Orlando

AVG. DAILY TEMP. CHANGE (DEG F), DeltaT

20.0

STORAGE TEMP. (DEG. F)

77.4

AVG. ATM. PRESS. (PSIA), PsubA

14.7

PRODUCT PHYSICAL DATA

MATERIAL STORED

Oily Wastewater

MOLECULAR WEIGHT (#/#MOLE) MsubV

53.00

VAPOR PRESS. AT STG. TEMP. (DEG. F), P

2.80

PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0)

1.00

THROUGHPUT DATA

DAYS IN SERVICE, DsubS

365

VAPOR SPACE HEIGHT (FT), VH

7.50

TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT

21429

FILLING RATE (BBLs/HR), FR

85.70

NUMBER OF TURNS FOR DAYS IN SERVICE, N

102.0

TURNOVER FACTOR, KsubN

0.43

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP } -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 252 | 1378 | 1629 |
| TONS FOR DAYS SERVICE = | 0.13 | 0.69 | 0.81 |
| ANNUALIZED POUNDS = | 252 | 1378 | 1629 |
| ANNUALIZED TONS = | 0.13 | 0.69 | 0.81 |
| POUND/HR (AVG) = | 0.03 | 0.16 | 0.19 |
| MAXIMUM EMISSION RATE (#/HR) = | | | |

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

TANK IDENTIFICATION NUMBER

Condensate 1

EMISSION CONTROLS

None

PERCENT EFFICIENCY

0 %

TANK PAINT COLOR

Black

TANK DIAMETER (FT), D

10.0

TANK HEIGHT (FT), H

15.0

PAINT FACTOR, FsubP

1.58

TANK CAPACITY (BBLs), VB

210

TANK CAPACITY (GALLONS), V

8820

ADJUSTMENT FACTOR FOR DIA., C

0.53

WEATHER DATA

Orlando

AVG. DAILY TEMP. CHANGE (DEG F), DeltaT

20.0

STORAGE TEMP. (DEG. F)

77.4

AVG. ATM. PRESS. (PSIA), PsubA

14.7

PRODUCT PHYSICAL DATA

MATERIAL STORED

Condensate

MOLECULAR WEIGHT (#/#MOLE) MsubV

53.00

VAPOR PRESS. AT STG. TEMP. (DEG. F), P

2.80

PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0)

1.00

THROUGHPUT DATA

DAYS IN SERVICE, DsubS

365

VAPOR SPACE HEIGHT (FT), VH

7.50

TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT

95.2

FILLING RATE (BBLs/HR), FR

142.9

NUMBER OF TURNS FOR DAYS IN SERVICE, N

0.45

TURNOVER FACTOR, KsubN

1.00

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP } -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 252 | 14 | 266 |
| TONS FOR DAYS SERVICE = | 0.13 | 0.01 | 0.13 |
| ANNUALIZED POUNDS = | 252 | 14 | 266 |
| ANNUALIZED TONS = | 0.13 | 0.01 | 0.13 |
| POUND/HR (AVG) = | 0.03 | 0.00 | 0.03 |
| MAXIMUM EMISSION RATE (#/HR) = | 0.06 | 21.22 | 21.28 |

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

| | | |
|-------------------------------|------------------|------|
| TANK IDENTIFICATION NUMBER | Waste Oil Tank 1 | |
| EMISSION CONTROLS | None | |
| PERCENT EFFICIENCY | | 0 % |
| TANK PAINT COLOR | Black | |
| TANK DIAMETER (FT), D | | 7.8 |
| TANK HEIGHT (FT), H | | 10.0 |
| PAINT FACTOR, FsubP | | 1.58 |
| TANK CAPACITY (BBLs), VB | | 90 |
| TANK CAPACITY (GALLONS), V | | 3780 |
| ADJUSTMENT FACTOR FOR DIA., C | | 0.41 |

WEATHER DATA

| | | |
|---|---------|------|
| | Orlando | |
| AVG. DAILY TEMP. CHANGE (DEG F), DeltaT | | 20.0 |
| STORAGE TEMP. (DEG. F) | | 77.4 |
| AVG. ATM. PRESS. (PSIA), PsubA | | 14.7 |

PRODUCT PHYSICAL DATA

| | | |
|---|-----------|--------|
| MATERIAL STORED | Waste oil | |
| MOLECULAR WEIGHT (#/#MOLE) MsubV | | 190.00 |
| VAPOR PRESS. AT STG. TEMP. (DEG. F), P | | 0.0019 |
| PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0) | | 1.00 |

THROUGHPUT DATA

| | | |
|--|--|------|
| DAYS IN SERVICE, DsubS | | 365 |
| VAPOR SPACE HEIGHT (FT), VH | | 5.00 |
| TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT | | 310 |
| FILLING RATE (BBLs/HR), FR | | 28.6 |
| NUMBER OF TURNOVERS FOR DAYS IN SERVICE, N | | 3.4 |
| TURNOVER FACTOR, KsubN | | 1.00 |

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP } -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 2 | 0 | 2 |
| TONS FOR DAYS SERVICE = | 0.00 | 0.00 | 0.00 |
| ANNUALIZED POUNDS = | 2 | 0 | 2 |
| ANNUALIZED TONS = | 0.00 | 0.00 | 0.00 |
| POUND/HR (AVG) = | 0.00 | 0.00 | 0.00 |
| MAXIMUM EMISSION RATE (#/HR) = | | | |

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

TANK IDENTIFICATION NUMBER

Lube Oil Storage Tank 1

EMISSION CONTROLS

None

PERCENT EFFICIENCY

0 %

TANK PAINT COLOR

White

TANK DIAMETER (FT), D

17.2

TANK HEIGHT (FT), H

7.0

PAINT FACTOR, FsubP

1.00

TANK CAPACITY (BBLs), VB

238

TANK CAPACITY (GALLONS), V

10000

ADJUSTMENT FACTOR FOR DIA., C

0.82

WEATHER DATA

Orlando

AVG. DAILY TEMP. CHANGE (DEG F), DeltaT

20.0

STORAGE TEMP. (DEG. F)

72.4

AVG. ATM. PRESS. (PSIA), PsubA

14.7

PRODUCT PHYSICAL DATA

MATERIAL STORED

Lube oil

MOLECULAR WEIGHT (#/#MOLE) MsubV

190.00

VAPOR PRESS. AT STG. TEMP. (DEG. F), P

0.0019

PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0)

1.00

THROUGHPUT DATA

DAYS IN SERVICE, DsubS

365

VAPOR SPACE HEIGHT (FT), VH

3.50

TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT

571

FILLING RATE (BBLs/HR), FR

71.4

NUMBER OF TURNS FOR DAYS IN SERVICE, N

2.4

TURNOVER FACTOR, KsubN

1.00

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP} -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 9 | 0 | 9 |
| TONS FOR DAYS SERVICE = | 0.00 | 0.00 | 0.00 |
| ANNUALIZED POUNDS = | 9 | 0 | 9 |
| ANNUALIZED TONS = | 0.00 | 0.00 | 0.00 |
| POUND/HR (AVG) = | 0.00 | 0.00 | 0.00 |
| MAXIMUM EMISSION RATE (#/HR) = | | | |

Effective Diameter for a Horizontal Fixed Roof Tank
(From Supplement E of AP-42)

FGT Station 18

Lube Oil Storage Tank No. 1

Tank Measurements

| | |
|----------------------------------|----|
| Length of Tank (ft) - L | 33 |
| Actual Diameter of Tank (ft) - D | 7 |

Calculated Values

| | |
|---|------|
| Effective Tank Diameter (ft) - D _{eff} | 17.2 |
| Vapor Space Outage (ft) - H _{vo} | 3.5 |

Equations:

| | |
|--|----------------------------|
| $D_{eff} = \text{SQRT}(L \cdot D / 0.785)$ | Equation 1-5 of Chapter 12 |
| $H_{vo} = D/2$ | Equation 1-6 of Chapter 12 |

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

| | | |
|-------------------------------|-----------------|------|
| TANK IDENTIFICATION NUMBER | Gasoline Tank 1 | |
| EMISSION CONTROLS | None | |
| PERCENT EFFICIENCY | | 0 % |
| TANK PAINT COLOR | White | |
| TANK DIAMETER (FT), D | | 5.5 |
| TANK HEIGHT (FT), H | | 2.0 |
| PAINT FACTOR, FsubP | | 1.00 |
| TANK CAPACITY (BBLs), VB | | 6.7 |
| TANK CAPACITY (GALLONS), V | | 280 |
| ADJUSTMENT FACTOR FOR DIA., C | | 0.27 |

WEATHER DATA

| | | |
|---|---------|------|
| | Orlando | |
| AVG. DAILY TEMP. CHANGE (DEG F), DeltaT | | 20.0 |
| STORAGE TEMP. (DEG. F) | | 72.4 |
| AVG. ATM. PRESS. (PSIA), PsubA | | 14.7 |

PRODUCT PHYSICAL DATA

| | | |
|---|----------|--------|
| MATERIAL STORED | Gasoline | |
| MOLECULAR WEIGHT (#/#MOLE) MsubV | | 66.00 |
| VAPOR PRESS. AT STG. TEMP. (DEG. F), P | | 8.7000 |
| PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0) | | 1.00 |

THROUGHPUT DATA

| | | |
|--|--|------|
| DAYS IN SERVICE, DsubS | | 365 |
| VAPOR SPACE HEIGHT (FT), VH | | 1.00 |
| TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT | | 19.0 |
| FILLING RATE (BBLs/HR), FR | | 71.4 |
| NUMBER OF TURNS FOR DAYS IN SERVICE, N | | 2.9 |
| TURNOVER FACTOR, KsubN | | 1.00 |

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP } -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 44 | 400 | 444 |
| TONS FOR DAYS SERVICE = | 0.02 | 0.20 | 0.22 |
| ANNUALIZED POUNDS = | 44 | 400 | 444 |
| ANNUALIZED TONS = | 0.02 | 0.20 | 0.22 |
| POUND/HR (AVG) = | 0.01 | 0.05 | 0.05 |
| MAXIMUM EMISSION RATE (#/HR) = | | | |

Effective Diameter for a Horizontal Fixed Roof Tank
(From Supplement E of AP-42)

FGT Station 18
Gasoline Tank No. 1

Tank Measurements

| | |
|----------------------------------|----|
| Length of Tank (ft) - L | 12 |
| Actual Diameter of Tank (ft) - D | 2 |

Calculated Values

| | |
|-------------------------------------|-----|
| Effective Tank Diameter (ft) - Deff | 5.5 |
| Vapor Space Outage (ft) - Hvo | 1 |

Equations:

| | |
|---|----------------------------|
| $Deff = \text{SORT}(L \cdot D / 0.785)$ | Equation 1-5 of Chapter 12 |
| $Hvo = D / 2$ | Equation 1-6 of Chapter 12 |

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

| | | |
|-------------------------------|-----------------|------|
| TANK IDENTIFICATION NUMBER | Kerosene Tank 1 | |
| EMISSION CONTROLS | None | |
| PERCENT EFFICIENCY | | 0 % |
| TANK PAINT COLOR | White | |
| TANK DIAMETER (FT), D | | 3.9 |
| TANK HEIGHT (FT), H | | 2.0 |
| PAINT FACTOR, FsubP | | 1.00 |
| TANK CAPACITY (BBLs), VB | | 3.35 |
| TANK CAPACITY (GALLONS), V | | 140 |
| ADJUSTMENT FACTOR FOR DIA., C | | 0.20 |

WEATHER DATA

| | | |
|---|---------|------|
| | Orlando | |
| AVG. DAILY TEMP. CHANGE (DEG F), DeltaT | | 20.0 |
| STORAGE TEMP. (DEG. F) | | 72.4 |
| AVG. ATM. PRESS. (PSIA), PsubA | | 14.7 |

PRODUCT PHYSICAL DATA

| | | |
|---|----------|--------|
| MATERIAL STORED | Kerosene | |
| MOLECULAR WEIGHT (#/#MOLE) MsubV | | 130.00 |
| VAPOR PRESS. AT STG. TEMP. (DEG. F), P | | 0.0120 |
| PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0) | | 1.00 |

THROUGHPUT DATA

| | | |
|--|--|------|
| DAYS IN SERVICE, DsubS | | 365 |
| VAPOR SPACE HEIGHT (FT), VH | | 1.00 |
| TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT | | 4.8 |
| FILLING RATE (BBLs/HR), FR | | 28.6 |
| NUMBER OF TURNS FOR DAYS IN SERVICE, N | | 1.4 |
| TURNOVER FACTOR, KsubN | | 1.00 |

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP } -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 0 | 0 | 0 |
| TONS FOR DAYS SERVICE = | 0.00 | 0.00 | 0.00 |
| ANNUALIZED POUNDS = | 0 | 0 | 0 |
| ANNUALIZED TONS = | 0.00 | 0.00 | 0.00 |
| POUND/HR (AVG) = | 0.00 | 0.00 | 0.00 |
| MAXIMUM EMISSION RATE (#/HR) = | | | |

Effective Diameter for a Horizontal Fixed Roof Tank
(From Supplement E of AP-42)

FGT Station 18
Kerosene Tank No. 1

Tank Measurements

| | |
|----------------------------------|---|
| Length of Tank (ft) - L | 6 |
| Actual Diameter of Tank (ft) - D | 2 |

Calculated Values

| | |
|---|-----|
| Effective Tank Diameter (ft) - D _{eff} | 3.9 |
| Vapor Space Outage (ft) - H _{vo} | 1 |

Equations:

$D_{eff} = \text{SQRT}(L \cdot D / 0.785)$ Equation 1-5 of Chapter 12

$H_{vo} = D / 2$ Equation 1-6 of Chapter 12

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

 CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

| | | |
|-------------------------------|-------------------|------|
| TANK IDENTIFICATION NUMBER | Diesel Tank No. 1 | |
| EMISSION CONTROLS | None | |
| PERCENT EFFICIENCY | | 0 % |
| TANK PAINT COLOR | Silver | |
| TANK DIAMETER (FT), D | | 4.4 |
| TANK HEIGHT (FT), H | | 3.0 |
| PAINT FACTOR, FsubP | | 1.20 |
| TANK CAPACITY (BBLs), VB | | 6.04 |
| TANK CAPACITY (GALLONS), V | | 254 |
| ADJUSTMENT FACTOR FOR DIA., C | | 0.10 |

WEATHER DATA

| | | |
|---|---------|------|
| | Orlando | |
| AVG. DAILY TEMP. CHANGE (DEG F), DeltaT | | 20.0 |
| STORAGE TEMP. (DEG. F) | | 74.9 |
| AVG. ATM. PRESS. (PSIA), PsubA | | 14.7 |

PRODUCT PHYSICAL DATA

| | | |
|---|--------|--------|
| MATERIAL STORED | Diesel | |
| MOLECULAR WEIGHT (#/#MOLE) MsubV | | 130.00 |
| VAPOR PRESS. AT STG. TEMP. (DEG. F), P | | 0.0090 |
| PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0) | | 1.00 |

THROUGHPUT DATA

| | | |
|--|--|------|
| DAYS IN SERVICE, DsubS | | 365 |
| VAPOR SPACE HEIGHT (FT), VH | | 1.50 |
| TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT | | 19.0 |
| FILLING RATE (BBLs/HR), FR | | 28.6 |
| NUMBER OF TURNOVERS FOR DAYS IN SERVICE, N | | 3.1 |
| TURNOVER FACTOR, KsubN | | 1.00 |

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP } -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 0 | 0 | 0 |
| TONS FOR DAYS SERVICE = | 0.00 | 0.00 | 0.00 |
| ANNUALIZED POUNDS = | 0 | 0 | 0 |
| ANNUALIZED TONS = | 0.00 | 0.00 | 0.00 |
| POUND/HR (AVG) = | 0.00 | 0.00 | 0.00 |
| MAXIMUM EMISSION RATE (#/HR) = | | | |

Effective Diameter for a Horizontal Fixed Roof Tank
(From Supplement E of AP-42)

FGT Station 18
Diesel Tank No. 1

Tank Measurements

| | |
|----------------------------------|---|
| Length of Tank (ft) - L | 5 |
| Actual Diameter of Tank (ft) - D | 3 |

Calculated Values

| | |
|-------------------------------------|-----|
| Effective Tank Diameter (ft) - Deff | 4.4 |
| Vapor Space Outage (ft) - Hvo | 1.5 |

Equations:

| | |
|-----------------------------------|----------------------------|
| $Deff = \sqrt{L \cdot D / 0.785}$ | Equation 1-5 of Chapter 12 |
| $Hvo = D / 2$ | Equation 1-6 of Chapter 12 |

FIXED ROOF TANK VOLATILE ORGANIC COMPOUND EMISSIONS (Rev. 6/90)

(C) COPYRIGHT 1990, PHOENIX ENGINEERING, INC.

CLIENT: Florida Gas Transmission

DATE: 05/18/93

LOCATION: Station 18

JOB NO:

CALCULATED USING AP-42, FOURTH EDITION SEP. 85, EQUATIONS 4.3-(1)&(2)

TANK PHYSICAL DATA

TANK IDENTIFICATION NUMBER

Diesel Tank No. 2

EMISSION CONTROLS

None

PERCENT EFFICIENCY

0 %

TANK PAINT COLOR

Silver

TANK DIAMETER (FT), D

5.2

TANK HEIGHT (FT), H

2.5

PAINT FACTOR, FsubP

1.20

TANK CAPACITY (BBLs), VB

7.20

TANK CAPACITY (GALLONS), V

303

ADJUSTMENT FACTOR FOR DIA., C

0.27

WEATHER DATA

Orlando

AVG. DAILY TEMP. CHANGE (DEG F), DeltaT

20.0

STORAGE TEMP. (DEG. F)

74.9

AVG. ATM. PRESS. (PSIA), PsubA

14.7

PRODUCT PHYSICAL DATA

MATERIAL STORED

Diesel

MOLECULAR WEIGHT (#/#MOLE) MsubV

130.00

VAPOR PRESS. AT STG. TEMP. (DEG. F), P

0.0090

PRODUCT FACTOR, KsubC (CRUDE 0.65, OTHER 1.0)

1.00

THROUGHPUT DATA

DAYS IN SERVICE, DsubS

365

VAPOR SPACE HEIGHT (FT), VH

1.25

TANK THROUGHPUT (BBLs FOR DAYS IN SERVICE), TT

19.0

FILLING RATE (BBLs/HR), FR

28.6

NUMBER OF TURNS FOR DAYS IN SERVICE, N

2.6

TURNOVER FACTOR, KsubN

1.00

FIXED ROOF TANK BREATHING LOSS, # LsubB =

$$2.26 \times 10^{-2} * (M_{subV}) * (P / (P_{subA} - P)) \text{ EXP } 0.68 * (D) \text{ EXP } 1.73 * (VH) \text{ EXP } 0.51 * (\Delta T) \text{ EXP } 0.5 * (F_{subP}) * (C) * (K_{subC}) * D_{subS} / 365 * (100 - \% \text{eff}) / 100$$

FIXED ROOF TANK WORKING LOSS, # LsubW =

$$2.4 \text{ EXP} -05 * M_{subV} * P * V * N * K_{subN} * K_{subC} * (100 - \% \text{eff}) / 100$$

| VOLATILE ORGANIC COMPOUND LOSSES | BREATHING | WORKING | TOTAL |
|----------------------------------|-----------|---------|-------|
| POUNDS FOR DAYS SERVICE = | 1 | 0 | 1 |
| TONS FOR DAYS SERVICE = | 0.00 | 0.00 | 0.00 |
| ANNUALIZED POUNDS = | 1 | 0 | 1 |
| ANNUALIZED TONS = | 0.00 | 0.00 | 0.00 |
| POUND/HR (AVG) = | 0.00 | 0.00 | 0.00 |
| MAXIMUM EMISSION RATE (#/HR) = | | | |

Effective Diameter for a Horizontal Fixed Roof Tank
(From Supplement E of AP-42)

FGT Station 18
Diesel Tank No. 2

Tank Measurements

| | |
|----------------------------------|-----|
| Length of Tank (ft) - L | 8.6 |
| Actual Diameter of Tank (ft) - D | 2.5 |

Calculated Values

| | |
|---|------|
| Effective Tank Diameter (ft) - D _{eff} | 5.2 |
| Vapor Space Outage (ft) - H _{vo} | 1.25 |

Equations:

| | |
|--|----------------------------|
| $D_{eff} = \text{SQRT}(L \cdot D / 0.785)$ | Equation 1-5 of Chapter 12 |
| $H_{vo} = D / 2$ | Equation 1-6 of Chapter 12 |

**Calculation of annual HC emissions from blowdowns
(for a typical station)**

| | |
|---|---------------|
| unmetered gas released (due to blowdowns) | 300 Mscf/mo. |
| unmetered gas released (due to blowdowns) | 3.6 MMscf/yr. |
| unmetered gas released (due to blowdowns) (@21.98 scf/lb) | 0.16 MMlb/yr. |
| unmetered gas released (due to blowdowns) (@21.98 scf/lb) | 81.89 TPY |
| VOCs released (due to blowdowns) (@2% VOCs) | 1.64 TPY |

BLOWDOWNS

Estimated number of blowdowns (in a year with the most blowdowns):

ESD/Station Blowdowns: 0

Maintenance (Compressor) Blowdowns: 180

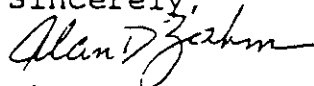
Stack/Vent Measurements:

| | <u>ESD/Station Vent</u> | <u>Maintenance/Compressor Vent</u> |
|--|-----------------------------|--|
| Number of vents | <u>2</u> | <u>1</u> |
| Height of vent above the ground | <u>13 1/2 ft</u> | <u>10 ft</u> |
| Diameter of vent at exit to atmosphere | <u>7 ft</u> | <u>10 ft</u> |

Florida Gas Transmission Co.
Page Two

If you have any questions, please call John Turner at 407/894-7555
or write to the above address.


Sincerely,



Alan D. Zahm, P.E.
Supervisor, Permitting
Air Resources Management

10 June 1993

Date

AZ/jt 

cc: Barry Andrews, P.E.
Preston Lewis, P.E.

DER Form 17-1.202(2)