→P 4/28

Check Sheet

Company Name: FG Transmission
Permit Number: AC 09-229441
PSD Number:
County: Citrus
Permit Engineer:
Others involved:

Application:
- ☑ Initial Application
- ☐ Incompleteness Letters
- ☐ Responses
- ☐ Final Application (if applicable)
- ☐ Waiver of Department Action
- ☐ Department Response
- ☐ Other

Intent:
- ☑ Intent to Issue
- ☑ Notice to Public
- ☑ Technical Evaluation
- ☐ BACT Determination
- ☑ Unsigned Permit
- ☐ Correspondence with:
  - ☐ EPA
  - ☐ Park Services
  - ☐ County
  - ☐ Other
- ☑ Proof of Publication
- ☐ Petitions - (Related to extensions, hearings, etc.)
- ☐ Other

Final Determination:
- ☑ Final Determination
- ☑ Signed Permit
- ☐ BACT Determination
- ☐ Other

Post Permit Correspondence:
- ☐ Extensions
- ☑ Amendments/Modifications
- ☐ Response from EPA
- ☐ Response from County
- ☐ Response from Park Services
- ☐ Other

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

DER File No. **AC** 09-229441
Citrus County

Mr. Carl D. Schulz, Vice President
Florida Gas Transmission Company
P. O. Box 1188
Houston, Texas 77251-1188
______________________________________/

Enclosed is Permit Number **AC** 09-229441 to construct a 6,500 bhp natural gas fired turbine at the Florida Gas Transmission Company's facility located 2 miles NW of the town of Lecanto along SR 44, Citrus County, Florida. This permit is issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 9-24-93 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.

(Clerk) 9-24-93 (Date)

Copies furnished to:
- B. Thomas, SW District
- B. Andrews, P.E., ENSR

Final Determination

Florida Gas Transmission Company
Citrus County
Lecanto, Florida
Station No. 26

Natural Gas Compressor Engine
Permit No. AC 09-229441

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

September 23, 1993

FINAL DETERMINATION

The Technical Evaluation and Preliminary Determination for the permit to construct a 6,500 bhp natural gas fired turbine at the Florida Gas Transmission Company facility located 2 miles NW of the town of Lecanto along SR 44 in Citrus County, Florida, was distributed on July 9, 1993. The Notice of Intent was published in The Ocala Star-Banner on July 17, 1993. Copies of the evaluation were available for inspection at the Department's offices in Tampa and Tallahassee.

Florida Gas Transmission Company (FGTC's) application for a permit to construct a 6,500 bhp natural gas turbine in Citrus County, Florida, has been reviewed by the Bureau of Air Regulation in Tallahassee.

Comments regarding the Permit Specific Conditions were submitted by Mr. V. Duane Pierce, Ph.D., Air Quality Supervisor for Florida Gas Transmission Company and Barry Andrews, P.E., representing FGTC as the professional engineer of record. The Bureau has considered Mr. Pierce's and Mr. Andrews' comments and agreed to the changes proposed to the draft specific conditions of the permit since these changes will not affect the air quality analysis considered during the evaluation of this project. The amendments to the Specific Conditions of the permit are as follows:

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 0.057 MMCF/hr
Maximum heat input shall not exceed 59.60 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 **0.0684 MMCF/hr (based on a fuel heating value of 1040 BTU/CF).**
Maximum heat input shall not exceed **71.52 MMBTU/hr**.

SPECIFIC CONDITION NO. 1

FROM:

Emission Limits

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

Pollutant	lbs/hr	tons/yr	Emission Factor
Nitrogen Oxides*	8.92	39.05	0.62 g/bhp-hr
Carbon Monoxide	6.46	28.29	0.45 g/bhp-hr
Volatile Organic Compounds (non-methane)	0.37	1.62	0.26 g/bhp-hr
Particulate Matter (TSP)	0.29	1.26	5 lbs/MMscf
Particulate Matter (PM_{10})	0.29	1.26	5 lbs/MMscf
Sulfur Dioxide	1.64	7.18	10 gr/100scf

*NOx Emission Standard of 42 ppmvd at 15% O_2 shall not be exceeded

TO:

Emission Limits

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

Pollutant	lbs/hr	tons/yr	Emission Factor
Nitrogen Oxides**	8.92	39.05	0.62 g/bhp-hr
Carbon Monoxide	6.46	28.29	0.45 g/bhp-hr
Volatile Organic Compounds (non-methane)	0.37	1.62	0.26 g/bhp-hr
Particulate Matter (TSP)	**0.35**	**1.51**	5 lbs/MMscf
Particulate Matter (PM_{10})	**0.35**	**1.51**	5 lbs/MMscf
Sulfur Dioxide	**1.97**	**8.62**	10 gr S/100scf

**NOx Emission Standard of 42 ppmvd at 15% O_2 shall not be exceeded
*Based on load conditions

The final action of the Department will be to issue construction permit **AC** 09-229441 with the changes noted above.

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

PERMITTEE:

Florida Gas Transmission Company
P. O. Box 1188
Houston, Texas 77251-1188

Permit Number: AC 09-229441

Expiration Date: June 30, 1995
County: Citrus
Latitude/Longitude: 30°09'50"N
83°36'22"W
Project: Natural Gas Turbine Engine (No. 2601) And Associated Supporting Equipment

The permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-210, 212, 272, 275, 296, and 297; and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of one natural gas fired turbine engine to be located 2 miles northwest of the town of Lecanto along State Route 44 in Citrus County, Florida. The UTM coordinates are, 353.212 km East and 3193.897 km North.

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

Attachments are listed below:

1. Application to Construct/Operate Air Pollution Sources
   DEP Form 17-1.202(1) received April 12, 1993

Printed on recycled paper.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules.

This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

GENERAL CONDITIONS:

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;

GENERAL CONDITIONS:

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

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Emission Limits

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

Pollutant	lbs/hr	tons/yr	Emission Factor
Nitrogen Oxides**	8.92	39.05	0.62 g/bhp-hr
Carbon Monoxide	6.46	28.29	0.45 g/bhp-hr
Volatile Organic Compounds (non-methane)	0.37	1.62	0.26 g/bhp-hr
Particulate Matter (TSP)	0.35	1.51	5 lbs/MMscf
Particulate Matter (PM_{10})	0.35	1.51	5 lbs/MMscf
Sulfur Dioxide	1.97	8.62	10 gr S/100scf

**NOx Emission Standard of 42 ppmvd at 15% O_2 shall not be exceeded
*Based on load conditions

2. Visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year). The emergency electrical generator is allowed to operate not more than 400 hours per year.

4. This source is allowed to burn natural gas only.

5. The permitted operating parameters and utilization rates for this natural gas turbine 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 0.0684 MMcf/hr (based on a fuel heating value of 1040 BTU/CF).
- Maximum heat input shall not exceed 71.52 MMBtu/hr.

SPECIFIC CONDITIONS:

6. Any change in the method of operation, equipment or operating hours shall be submitted to the DEP's Bureau of Air Regulation and Southwest District offices.

7. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

Compliance Determination

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

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

9. Other DEP approved methods may be used for compliance testing after prior Department approval. Compliance with the SO_2 emission limit can be determined by calculations based on fuel analysis using ASTM D1072-80, D3031-81, D4084-82, or D3246-81 for sulfur content of gaseous fuels.

10. Initial compliance with the volatile organic compound (VOC) emissions limits will be demonstrated by EPA Method 25A or Method 18. Thereafter, except as provided in Rule 17-297.340(2), compliance with the VOC emission limits will be assumed, provided the CO allowable emission rate is achieved.

11. During performance tests, to determine compliance with the NO_X standard, measured NO_X emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_X = (NO_{X\ obs}) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19\ (H_{obs} - 0.00633)} \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

where:

NO_X = Emissions of NO_X at 15 percent oxygen and ISO standard ambient conditions.

$NO_{X\ obs}$ = Measured NO_X emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

12. Stack sampling facilities shall be required and shall comply with the requirements of F.A.C. Rule 17-297.345. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in writing in advance of the compliance test(s). The source shall operate between 90% and 100% of maximum capacity for the ambient conditions experienced during compliance test(s). Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

13. Sulfur and nitrogen content and lower heating value of the fuel being fired in the combustion turbine shall be determined as specified in 40 CFR 60.334(b). Any request for a future custom monitoring schedule shall be made in writing and directed to the Southwest District office. Any custom schedule approved by DEP pursuant to 40 CFR 60.334(b) will be recognized as enforceable provisions of the permit, provided that the holder of this permit demonstrate that the provisions of the schedule will be adequate to assure continuous compliance.

14. The permittee shall annually perform a visual inspection of the turbine compressor engine, filters, associated piping system for rust spots, cracks, leaks and odors. Also ensure that safety valves and the stack are in proper order and working properly. The permittee shall document the findings and corrective action taken.

SPECIFIC CONDITIONS:

Rule Requirements

15. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-210, 212, 275, 296, 297 and 17-4, Florida Administrative Code and 40 CFR 60 (July, 1992 version).

16. This source shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 17-296.800,(2)(a), Standards of Performance for Stationary Gas Turbines.

17. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-210.300(1)).

18. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor pursuant to F.A.C. Rule 17-296.320(2). Objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonable interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance pursuant to F.A.C. Rule 17-296.200(123).

19. This source shall be in compliance with all applicable provisions of F.A.C. Rules 17-210.650: Circumvention; 17-210.700: Excess Emissions; 17-296.800: Standards of Performance for New Stationary Sources (NSPS); Chapter 17-297: Stationary Sources-Emissions Monitoring; Chapter 17-296: Stationary Source-Emission Standards and, 17-4.130: Plant Operation-Problems.

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

22. Pursuant to F.A.C. Rule 17-210.300(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur and nitrogen content, turbine inlet and outlet temperature, RPM, lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

23. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

SPECIFIC CONDITIONS:

24. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 23 day

of September, 1993

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Howard L Rhodes

Howard L. Rhodes, Director
Division of Air Resources
Management

Florida Department of
Environmental Protection

Memorandum

TO: Howard L. Rhodes

FROM: C. H. Fancy

DATE: September 17, 1993

SUBJ: Approval of Construction Permit
Florida Gas Transmission Company
Air Permit AC 09-229441
Natural Gas Compressor Station No. 26, Citrus County

Attached for your approval and signature is a permit prepared by the Bureau of Air Regulation for the above mentioned company to construct a 6,500 bhp natural gas fired turbine.

No adverse comments were received during the public notice period.

I recommend your approval and signature.

CHF/TH/bjb

Attachments

Memorandum

Florida Department of
Environmental Protection

TO: Virginia B. Wetherell

FROM: Howard L. Rhodes

DATE: September 23, 1993

SUBJ: Approval of Construction Permit
Florida Gas Transmission Company
Air Permit AC 56-230129/PSD-FL-203
Natural Gas Compressor Station No. 20, St. Lucie County

Attached for your approval and signature is a permit and a BACT prepared by the Bureau of Air Regulation for the above mentioned company to construct a natural gas fired 4000 bhp reciprocating engine.

The FGTC Phase III expansion project will be increasing the natural gas transport capacity of the existing Florida gas pipeline system. The scope of the work for Phase III includes expansions by the addition of state-of-the-art compressor engines at four existing compressor stations and two new proposed compressor stations. The proposed unit will be used to drive a gas compressor that is a part of a new gas transmission line that will transport natural gas from source wells in Texas and Louisiana. The proposed engine will incorporate lean burn technology for NOx control. The proposed engines would be used solely for the purpose of transporting natural gas in the pipeline for distribution in Florida.

No adverse comments were received during the public notice period. This project is not controversial.

I recommend your approval and signature.

HLR/TH/bjb

Attachments

R. File

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 30, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. V. Duane Pierce
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company
Post Office Box 1188
Houston, Texas 77251-1188

Dear Mr. Pierce:

Re: Request for Extensions to Air Construction Permits
AC 62-229319/PSD-FL-202-Taylor County
AC 05-229322-Brevard County
AC 56-230129/PSD-FL-203-St. Lucie County
AC 50-229440-Palm Beach County
AC 09-229441-Citrus County
AC 29-228821-Hillsborough

The Department is in receipt of your letter dated April 20, requesting to extend the expiration date of the above mentioned permits. The Bureau has evaluated your request and agrees to extend the expiration date of the permits as follows:

Expiration Date:

From: July 30, 1995
To: January 30, 1996

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 (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 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

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

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 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; and,
(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 amendment 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, Florida Administrative Code.

A copy of this letter shall be filed with the referenced permits and become a part of the permits.

Sincerely,

Howard L Rhodes

Howard L. Rhodes, Director
Division of Air Resources
Management

HLR/th/t

Enclosure: Mr. V. Duane Pierce's letter of April 20, 1995

cc: Ed Middleswart, NWD
Robert Leetch, NED
Charles Collins, CD
Isidore Goldman, SED
Jerry Campbell, EPCHC
Alan Weatherford, FGTC
Barry Andrews, ENRS
Jim Stormer, PBCHU

BEST AVAILABLE COPY

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
APR 26 1995
Bureau of
Air Regulation

April 20. 1995

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

RE: Extension of Construction Permits

Air Permit No. AC 62-229319/PSD-FL-202
FGT Compressor Station No. 15, Taylor County

Air Permit No. AC 05-229322
FGT Compressor Station No. 19. Brevard County

Air Permit No. AC 56-230129/PSD-FL-203
FGT Compressor Station No. 20, St. Lucie County

Air Permit No. AC 50-229440
FGT Compressor Station No. 21, Palm Beach County

Air Permit No. AC 09-229441
FGT Compressor Station No. 26. Citrus County

Air Permit No. AC 29-228821
FGT Compressor Station No. 30, Hillsborough County

Dear Mr. Fancy:

Florida Gas Transmission Company (FGT) requests an extension for each of the above referenced air construction permits to a date 60 days after the due date for the Title V permit application for the facility. A non-Title V operating permit application for each of the facilities was submitted on 31 March 1995.

If you have any questions or need additional information, please call me at (713) 646-7323 or Mr. Allan Weatherford at (407) 875/5816.

Sincerely,

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project

An ENRON/SONAT Affiliate

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
OCT 26 1994
Bureau of
Air Regulation

October 24, 1994

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

RE: Notification of Initial Startup
Permit No. AC 62-229319/PSD-FL-202
Florida Gas Transmission Company, Compressor Station No. 15, Taylor County
Permit No. AC 50-229440
Florida Gas Transmission Company, Compressor Station No. 21, Palm Beach County
Permit No. AC 09-229441
Florida Gas Transmission Company, Compressor Station No. 26, Citrus County
Permit No. AC 29-228821
Florida Gas Transmission Company, Compressor Station No. 30, Hillsborough County

Dear Mr. Fancy:

As required by 40 CFR 60.7(a)(3), Florida Gas Transmission Company hereby makes notification of the initial startup of the new turbines at Compressor Stations Nos. 15, 21, 26 and 30 as authorized under the FDEP Permits referenced above.

Startup of the turbines at these sites was initiated on October 14, 1994.

If you have any questions or need further information, please call me at (713) 646-7323 or Mr. Allan Weatherford at (407) 875-5816.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor

cc: Jim Pennington, Bureau of Air Regulation, Florida Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400

Chris Kirts, Section Chief, Florida Department of Environmental Protection, Northeast District, 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590

Jeff Koerner, Air Pollution Control Section, Palm Beach County Public Health Unit, P.O. Box 29, West Palm Beach, Florida 33402-0029

B. Thomas, Florida Department of Environmental Protection, Southwest District, 4520 Oak Fair Boulevard, Tampa, Florida 33610-7347

Sterlin Woodard, Section Chief, Environmental Protection Commission of Hillsborough County, 1410 N. 21st Street, Tampa, Florida 33605

ORIGINAL FILED IN AC ~~29~~ 62 -228821

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
OCT 27 1994
Bureau of
Air Regulation

October 24, 1994

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

RE: Turbine Model Name Change
Permit No. AC 62-229319/PSD-FL-202
Florida Gas Transmission Company, Compressor Station No. 15, Taylor County
Permit No. AC 50-229440
Florida Gas Transmission Company, Compressor Station No. 21, Palm Beach County
Permit No. AC 09-229441
Florida Gas Transmission Company, Compressor Station No. 26, Citrus County

Dear Mr. Fancy:

The model names of the turbines installed under the above referenced permits have been changed.

Solar Turbines, Inc., has changed the name of its model "Centaur-Taurus T-6502" to "Taurus 60." The old name was used in the permit applications; however, the turbines installed at Compressor Stations 21 and 26 (Permit Nos. AC 50-229440 and AC 09-229441) have the new model name.

Solar Turbines, Inc., has also changed the name of its model "Mars T-12000" to "Mars 90." The old name was used in the permit application; however, the turbines installed at Compressor Station 15 (Permit No. AC 62-229319/PSD-FL-202) have the new model name.

These are model name changes only. There has been no changes in the designs of these turbines.

If you have any questions or need further information, please call me at (713) 646-7323 or Mr. Allan Weatherford at (407) 875-5816.

Sincerely,

V. Duane Pierce, Ph.D.
Air Quality Supervisor

cc: Jim Pennington, Bureau of Air Regulation, Florida Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400

Chris Kirts, Section Chief, Florida Department of Environmental Protection, Northeast District, 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590

Jeff Koerner, Air Pollution Control Section, Palm Beach County Public Health Unit, P.O. Box 29, West Palm Beach, Florida 33402-0029

B. Thomas, Florida Department of Environmental Protection, Southwest District, 4520 Oak Fair Boulevard, Tampa, Florida 33610-7347

Carlon Nelson - Phase III
Bill Osborne - Phase III
Allan Weatherford - FGT
Phase III Files

FILE: FLNAME.ltr

Clair Patty [illegible] 11/3

You asked if we needed to amend the permits - I checked with Teresa & we both agree that in the past we have copied the district & filed these - Do you see any reason to do it any differently? NO

Patty

ORIGINAL FILED IN AC62-229319

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

April 28, 1995

RECEIVED
MAY 04 1995
Department of Environmental Protection
SOUTHWEST DISTRICT
BY

RECEIVED
MAY 22 1995
Bureau of
Air Regulation

Dr. Richard D. Garrity
Director of District Management
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

RE: Air Permit No. AC 09-229441
FGT Compressor Station No. 26, Citrus County
Fee for Operating Permit Application

Dear Dr. Garrity:

Attached is one check for $50.00 for the application fee for the application for an air operating permit for the above referenced facility as requested in your letter dated 21 April 1995 and received by Florida Gas Transmission company (FGT) on 25 April 1995.

FGT questions the requirement for this fee. FGT was instructed by another FDEP District that a fee would not be required. In addition 62-213.210 F.A.C. states "After December 31, 1992, no permit application processing fee, renewal fee, modification fee or amendment fee is required for an operation permit for a Title V source." This is a Title V source. Please clarify the applicability of this fee.

Thank you for your assistance in this matter. My phone number is (713) 646-7323 and Mr. Allan Weatherford's number is (407) 875-5816.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
APR 03 1995
Department of Environmental Protection
SOUTHWEST DISTRICT
BY

March 31, 1995

Mr. ~~Bill Proses~~ J. KISSEL
Air ~~Compliance~~ PERMITTING Supervisor
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

RE: Air Permit No. AC 09-229441
FGT Compressor Station No. 26, Citrus County
Operating Permit Application

Dear Mr. ~~Proses:~~

Enclosed is one application for an air operating permit for the facilities constructed under the above referenced Air Construction Permit. This application is for a state operating permit only. It is <u>not</u> an application for a Title V permit. A Title V permit application for the entire facility will be submitted by the required submittal date for a Title V permit application.

The short form has been used for this application. This was chosen based on discussions with several Florida Department of Environmental Protection District offices and local program offices. There were differences of opinions as to which form was the appropriate form. The majority of opinions were for the short form. Our analysis of the regulations, the forms and the directions to the forms lead us to conclude that the short form is the most appropriate.

Emissions testing was performed on March 21, 1995, and the test report has been attached to this application as Attachment 6.

We understand that a fee is not required since we have paid an annual operating fee for this facility.

We will be requesting an extension for our construction permit to a date 60 days past the due date for our Title V permit application. This will be done through the Department of Environmental Protection in Tallahassee since they issued the Construction Permit. We will copy you on this request.

If you have any questions or need further information, please call me at (713) 646-7323 or Mr. Allan Weatherford at (407) 875-5816.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project

cc: Clair Fancy - FDEP - Tallahassee
William Rome - FGT - w/o attachments
Allan Weatherford - FGT
FGT Lecanto Compressor Station No. 26 File

FILE: 26opapp.doc

1 COPY OF TEST REPORT RCVD. WITH APP'NS & GIVEN TO COMPLIANCE SECTION 4/20/95 W/COPY OF THIS LETTER & MARKED-UP 4/10/95 memo & 1 COPY OF APP'N.

INTEROFFICE MEMORANDUM

Date: 10-Apr-1995 02:20pm EST
From: Teresa Heron TAL
HERON_T@A1@DER
Dept: Air Resources Management
Tel No: 488-1344
SUNCOM:

TO: Gerald Kissel TPA (KISSEL_G@A1@TPA1)
TO: Hal Hanna ORL (HANNA_H@A1@ORL1)

CC: Alvaro Linero TAL (LINERO_A@A1@DER)
CC: Scott Sheplak TAL (SHEPLAK_S@A1@DER)

Subject: Fla Gas Transmission Operating Permits

RE: Fla Gas Transmission Operating permits request

Please refer to the DARM-PER/ GEN-14 guidance memorandum dated September 9, 1994. Subject: "Guidance on Operating a Source While Action is Pending on an Application".

For consistency, take the same action: issue an AO for each AC permit or extend the expiration date of each permit until they can timely apply for a Title V source.
The application fee for a permit extension is $50 .

Please refer all future requests on this issue to the Title V section:
John Brown
Bruce Mitchel
Scott Sheplak
Tom Cascio
Jonathan Holton

Feel free to contact Scott Sheplak if you have further questions on this request.

4/18 Scott agreed - best to extend AC & not issue op'g permit

Telecon JK/HH
4/20 H Hanna is extending their AC only, & changing a limit (since they tested at 83%) to 83% * 1.1 on a limit in the permit. We will only extend the AC, review the test data, etc., not issue on op'g permit.

JK

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

March 31, 1995

Mr. Bill Proses
Air Compliance Supervisor
Florida Department of Environmental Protection
Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

COPY

RE: Air Permit No. AC 09-229441
FGT Compressor Station No. 26, Citrus County
Operating Permit Application

Dear Mr. Proses:

Enclosed is one application for an air operating permit for the facilities constructed under the above referenced Air Construction Permit. This application is for a state operating permit only. It is not an application for a Title V permit. A Title V permit application for the entire facility will be submitted by the required submittal date for a Title V permit application.

The short form has been used for this application. This was chosen based on discussions with several Florida Department of Environmental Protection District offices and local program offices. There were differences of opinions as to which form was the appropriate form. The majority of opinions were for the short form. Our analysis of the regulations, the forms and the directions to the forms lead us to conclude that the short form is the most appropriate.

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We understand that a fee is not required since we have paid an annual operating fee for this facility.

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If you have any questions or need further information, please call me at (713) 646-7323 or Mr. Allan Weatherford at (407) 875-5816.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project

cc: Clair Fancy - FDEP - Tallahassee
William Rome - FGT - w/o attachments
Allan Weatherford - FGT
FGT Lecanto Compressor Station No. 26 File

FILE: 26opapp.doc

COPY

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - SHORT FORM

I. APPLICATION INFORMATION

Identification of Facility Addressed in This Application

Compressor Station No. 26
Florida Gas Transmission Company
2 miles northwest of the town of Lecanto along State Route 44,
Citrus County, Florida

Owner/Authorized Representative or Responsible Official

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

Name : William E. Rome
Title : Vice President, Operations

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

Organization/Firm : Florida Gas Transmission Company
Street Address : 1400 Smith Street
City : Houston
State : TX Zip Code : 77002-____

3. Owner/Authorized Representative or Responsible Official Telephone Numbers :

Telephone : 7138536071 Fax :

4. Owner/Authorized Representative or Responsible Official Statement :

I, the undersigned, am the owner or authorized representative of the facility (non-Title V source) addressed in this Application for Air Permit or the responsible official, as defined in Chapter 62-213, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. Further, I agree to operate and maintain the air pollutant emissions units and air pollution control equipment described in this application so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. If the purpose of this application is to obtain an air operation permit or operation permit revision for one or more emissions units which have undergone construction or modification, I certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

Signature

3/31/95
Date

Scope of Application

Emissions Unit ID	Description of Emissions Unit
01	Compressor Engine No. 2601
Unknown	Emergency Generator
Unknown	2,000-Gallon New Lube Oil Storage Tank
Unknown	4,200-Gallon Condensate Storage Tank
Unknown	4,200-Gallon Oily Water Tank
Unknown	600-Gallon Used Lube Oil Tank
Unknown	300-Gallon Oily Water Tank

Scope of Application

Emissions Unit ID	Description of Emissions Unit
Unknown	Fugitive Emissions

Purpose of Application

Category I : All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain :

[ ] Initial air operation permit for one or more existing, but previously unpermitted, emissions units.

[X] Initial air operation permit for one or more newly constructed or modified emissions units.

Current construction permit number :
AC 09-229441

[ ] Air operation permit revision to address one or more newly constructed or modified emissions units.

Current construction permit number :

Operation permit to be revised :

[ ] Air operation permit renewal.

Operation permit to be renewed :

Application Processing Fee

Attached - Amount : NA

Construction/Modification Information

1. Description of Alterations :

No Alterations

2. Date of Commencement of Construction : 4/25/94

Professional Engineer Certification

1. Professional Engineer Name : Jimmy D. Harp

Registration Number : 17362

2. Professional Engineer Mailing Address :

Organization/Firm : Florida Gas Transmission Company
Street Address : 1400 Smith Street
City : Houston
State : TX Zip Code : 77002-____

3. Professional Engineer Telephone Numbers :

Telephone : 7138531619 Fax : 7136462723

4. Professional Engineer Statement :

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

(1) To the best of my knowledge, there is reasonable assurance (a) that the air pollutant emissions unit(s) and the air pollutant control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions in the Florida Statues and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

Jimmy D. Harp
Signature

3/30/95
Date

Application Contact

1. Name and Title of Application Contact :

Name : Allan Weatherford
Title : Division Environmental Specialist

2. Application Contact Mailing Address :

Organization/Firm : Florida Gas Transmission Company
Street Address : 601 South Lake Destiny Drive
City : Maitland
State : FL Zip Code : 32751-____

3. Application Contact Telephone Numbers :

Telephone : 4078755816 Fax : 4078755896

Application Comment

This application is for a non-Title V operating permit for new sources. ATitle V application will be submitted for this facility by the appropriate due date.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Name, Location, and Type

1. Facility Owner or Operator :
Florida Gas Transmission Company

2. Facility Name : Compressor Station No. 26

3. Facility Identification Number : 40TPA52025

4. Facility Location Information :

Compressor Station No. 26
Florida Gas Transmission Company
2 miles northwest of the town of Lecanto along State Route 44,
Citrus County, Florida

Facility Street Address : 245 North Maylon Road
City : Lecanto
County : Citrus
Zip Code : 34461-____

5. Facility UTM Coordinates :

Zone : 17
East (km) : 353.21
North (km) : 3193.90

6. Facility Latitude/Longitude :

Latitude (DD/MM/SS) : 28 51 58
Longitude (DD/MM/SS) : 82 30 18

7. Governmental Facility Code : 0	8. Facility Status Code : A	9. Relocatable Facility ? N	10. Facility Major Group SIC Code : 49

11. Facility Comment :

Facility is a Title V facility.

Facility Contact

1. Name and Title of Facility Contact :

Name : Mark Winder
Title :

2. Facility Contact Mailing Address :

Organization/Firm : Florida Gas Transmission Company
Street Address : 245 North Maylon Road
City : Lecanto
State : FL Zip Code : 34461-____

3. Facility Contact Telephone Numbers :

Telephone : 9045270682 Fax :

Facility Regulatory Classifications

1. Small Business Stationary Source? N

2. Title V Source?

3. Synthetic Non-Title V Source by Virtue of Previous Air Construction Permit? N

Construction Permit Number/Issue Date : AC 09-229441 09/23/93

4. Facility Regulatory Classifications Comment :

Facility is a Title V facility. This application is for a non-Title V operating permit

D. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location :	Attachment 1
2. Facility Plot Plan :	Attachment 2
3. Process Flow Diagram(s) :	Attachment 3
4. Precautions to Prevent Emissions of Unconfined Particulate Matter :	NA

III. EMISSIONS UNIT INFORMATION

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Information Section 1

Type of Emissions Unit Addressed in This Section

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions only.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 1

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

Compressor Engine No. 2601

2. ARMS Identification Number : 01

3. Emissions Unit Status Code : A

4. Emissions Unit Major Group SIC Code : 49

5. Initial Startup Date : 10/14/94

6. Long-term Reserve Shutdown Date :

7. Package Unit :

Manufacturer : Solar
Model Number : Centaur-Taurus 60S

8. Generator Nameplate Rating : MW

9. Incinerator Information :

Dwell Temperature : °F
Dwell Time : seconds
Incinerator Afterburner Temperature : °F

10. Emissions Unit Comment :

Model previously called T-6052.

Emissions Unit Information Section 1

Emissions Unit Control Equipment 1

1. Description : Dry, Low NOx Combuster
2. Control Device or Method Code : 99

Emissions Unit Information Section 1

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	72 mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr tons/day
3. Maximum Process or Throughput Rate : Units :	
4. Maximum Production Rate : Units :	
5. Operating Capacity Comment : Manufacturer rated at 6500 bhp at ISO conditions.	

Emissions Unit Information Section 1

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :

24 hours/day	7 days/week
52 weeks/year	8760 hours/year

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 1

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment 3
2. Fuel Analysis or Specification :	Attachment 4
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	Attachment 5
5. Compliance Test Report :	Pending
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information Required by Rule or Statue :	NA

III. EMISSIONS UNIT INFORMATION

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Information Section 2

Type of Emissions Unit Addressed in This Section

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions only.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 2

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

Emergency Generator

2. ARMS Identification Number : Unknown

3. Emissions Unit Status Code : A

4. Emissions Unit Major Group SIC Code : 49

5. Initial Startup Date : 10/14/94

6. Long-term Reserve Shutdown Date :

7. Package Unit :

Manufacturer : Cummins-Onan
Model Number : G 12

8. Generator Nameplate Rating : 0 MW

9. Incinerator Information :

Dwell Temperature : °F
Dwell Time : seconds
Incinerator Afterburner Temperature : °F

10. Emissions Unit Comment :

The emergency generator will operate no more than 400 hours per year.

Emissions Unit Information Section _______

Emissions Unit Control Equipment _______

1. Description :
2. Control Device or Method Code :

Emissions Unit Information Section 2

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	2 mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr tons/day
3. Maximum Process or Throughput Rate : Units :	
4. Maximum Production Rate : Units :	
5. Operating Capacity Comment :	

Emissions Unit Information Section 2

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :

24 hours/day	7 days/week
52 weeks/year	8760 hours/year

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 2

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment 3
2. Fuel Analysis or Specification :	Attachment 4
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information Required by Rule or Statue :	NA

III. EMISSIONS UNIT INFORMATION

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Information Section 3

Type of Emissions Unit Addressed in This Section

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions only.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 3

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

2,000-Gallon New Lube Oil Storage Tank

2. ARMS Identification Number : Unknown

3. Emissions Unit Status Code : A

4. Emissions Unit Major Group SIC Code : 49

5. Initial Startup Date : 10/14/94

6. Long-term Reserve Shutdown Date :

7. Package Unit :

Manufacturer :
Model Number :

8. Generator Nameplate Rating : MW

9. Incinerator Information :

Dwell Temperature : °F
Dwell Time : seconds
Incinerator Afterburner Temperature : °F

10. Emissions Unit Comment :

Emissions Unit Information Section 3

Emissions Unit Control Equipment 1

1. Description : Pressurized except when being loaded.
2. Control Device or Method Code :

Emissions Unit Information Section 3

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate : 300 Units : gal/yr		
4. Maximum Production Rate : Units :		
5. Operating Capacity Comment :		

Emissions Unit Information Section 3

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :

24 hours/day	7 days/week
52 weeks/year	8760 hours/year

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 3

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment 3
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information Required by Rule or Statue :	NA

III. EMISSIONS UNIT INFORMATION

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Information Section 4

Type of Emissions Unit Addressed in This Section

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions only.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 4

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

4,200-Gallon Condensate Storage Tank

2. ARMS Identification Number : Unknown

3. Emissions Unit Status Code : A

4. Emissions Unit Major Group SIC Code : 49

5. Initial Startup Date : 10/14/94

6. Long-term Reserve Shutdown Date :

7. Package Unit :

Manufacturer :
Model Number :

8. Generator Nameplate Rating : MW

9. Incinerator Information :

Dwell Temperature : °F
Dwell Time : seconds
Incinerator Afterburner Temperature : °F

10. Emissions Unit Comment :

Used to store liquid Hydrocarbons from pipeline.

Emissions Unit Information Section _______

Emissions Unit Control Equipment _______

1. Description :
2. Control Device or Method Code :

Emissions Unit Information Section 4

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr tons/day
3. Maximum Process or Throughput Rate : 21000 Units : gal/yr	
4. Maximum Production Rate : Units :	
5. Operating Capacity Comment :	

Emissions Unit Information Section 4

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :

24 hours/day	7 days/week
52 weeks/year	8760 hours/year

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 4

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment 3
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information Required by Rule or Statue :	NA

III. EMISSIONS UNIT INFORMATION

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Information Section 5

Type of Emissions Unit Addressed in This Section

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

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[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 5

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

4,200-Gallon Oily Water Tank

2. ARMS Identification Number : Unknown

3. Emissions Unit Status Code : A	4. Emissions Unit Major Group SIC Code : 49

5. Initial Startup Date : 10/14/94

6. Long-term Reserve Shutdown Date :

7. Package Unit :

Manufacturer :
Model Number :

8. Generator Nameplate Rating : MW

9. Incinerator Information :

Dwell Temperature : °F
Dwell Time : seconds
Incinerator Afterburner Temperature : °F

10. Emissions Unit Comment :

Emissions Unit Information Section ________

Emissions Unit Control Equipment ________

1. Description :
2. Control Device or Method Code :

Emissions Unit Information Section 5

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr
2. Maximum Incinerator Rate :	lb/hr tons/day
3. Maximum Process or Throughput Rate : 3600 Units : gal/yr	
4. Maximum Production Rate : Units :	
5. Operating Capacity Comment :	

Emissions Unit Information Section 5

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :

24 hours/day	7 days/week
52 weeks/year	8760 hours/year

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 5

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment 3
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information Required by Rule or Statue :	NA

III. EMISSIONS UNIT INFORMATION

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Information Section 6

Type of Emissions Unit Addressed in This Section

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions only.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 6

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

600-Gallon Used Lube Oil Tank

2. ARMS Identification Number : Unknown

3. Emissions Unit Status Code : A

4. Emissions Unit Major Group SIC Code : 49

5. Initial Startup Date : 10/14/94

6. Long-term Reserve Shutdown Date :

7. Package Unit :

Manufacturer :
Model Number :

8. Generator Nameplate Rating : MW

9. Incinerator Information :

Dwell Temperature : °F
Dwell Time : seconds
Incinerator Afterburner Temperature : °F

10. Emissions Unit Comment :

Emissions Unit Information Section ______

Emissions Unit Control Equipment ______

1. Description :
2. Control Device or Method Code :

Emissions Unit Information Section 6

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate : 600 Units : gal/yr		
4. Maximum Production Rate : Units :		
5. Operating Capacity Comment :		

Emissions Unit Information Section 6

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :

24 hours/day

7 days/week

52 weeks/year

8760 hours/year

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 6

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment 3
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information Required by Rule or Statue :	NA

III. EMISSIONS UNIT INFORMATION

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Information Section 7

Type of Emissions Unit Addressed in This Section

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions only.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 7

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

300-Gallon Oily Water Tank

2. ARMS Identification Number : Unknown

3. Emissions Unit Status Code : A

4. Emissions Unit Major Group SIC Code : 49

5. Initial Startup Date : 10/14/94

6. Long-term Reserve Shutdown Date :

7. Package Unit :

Manufacturer :
Model Number :

8. Generator Nameplate Rating : MW

9. Incinerator Information :

Dwell Temperature : °F
Dwell Time : seconds
Incinerator Afterburner Temperature : °F

10. Emissions Unit Comment :

This tank will be located in the compressor building and serve as a short term holding tank during cleaning operations.

Emissions Unit Information Section ______

Emissions Unit Control Equipment ______

1. Description :
2. Control Device or Method Code :

Emissions Unit Information Section 7

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate : 3600 Units : gal/yr		
4. Maximum Production Rate : Units :		
5. Operating Capacity Comment :		

Emissions Unit Information Section 7

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :

24 hours/day	7 days/week
52 weeks/year	8760 hours/year

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 7

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment 3
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information Required by Rule or Statue :	NA

III. EMISSIONS UNIT INFORMATION

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Information Section 8

Type of Emissions Unit Addressed in This Section

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, an individually-regulated emission point (stack or vent) serving a single process or production unit, or activity, which also has other individually-regulated emission points.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a collectively-regulated group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions only.

[X] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

Emissions Unit Information Section 8

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section :

Fugitive Emissions

2. ARMS Identification Number : Unknown

3. Emissions Unit Status Code : A

4. Emissions Unit Major Group SIC Code : 49

5. Initial Startup Date : 10/14/94

6. Long-term Reserve Shutdown Date :

7. Package Unit :

Manufacturer : Various
Model Number : Various

8. Generator Nameplate Rating : MW

9. Incinerator Information :

Dwell Temperature : °F
Dwell Time : seconds
Incinerator Afterburner Temperature : °F

10. Emissions Unit Comment :

Potential fugitive emission from Compressor Station No. 26 include emissions from the new valves and flanges that are in gas service.

Emissions Unit Information Section ______

Emissions Unit Control Equipment ______

1. Description :
2. Control Device or Method Code :

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	mmBtu/hr	
2. Maximum Incinerator Rate :	lb/hr	tons/day
3. Maximum Process or Throughput Rate : Units :		
4. Maximum Production Rate : Units :		
5. Operating Capacity Comment : This section is not applicable to fugitive emissions.		

Emissions Unit Information Section 8

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :

24 hours/day

7 days/week

52 weeks/year

8760 hours/year

I. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 8

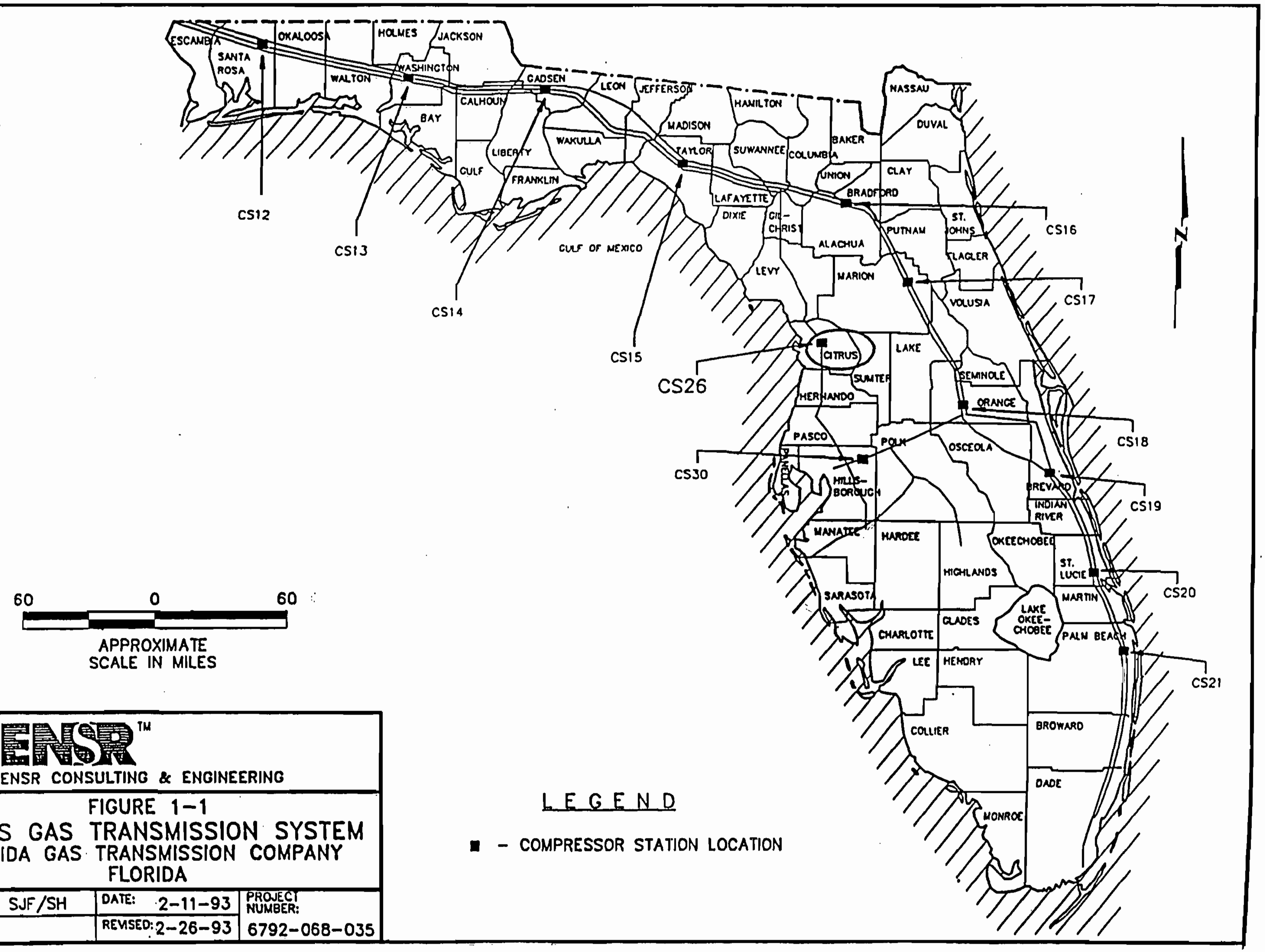
Supplemental Requirements for All Applications

1. Process Flow Diagram :	NA
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information Required by Rule or Statue :	NA

ATTACHMENT 1

Area Map

CE679262
12-15-92

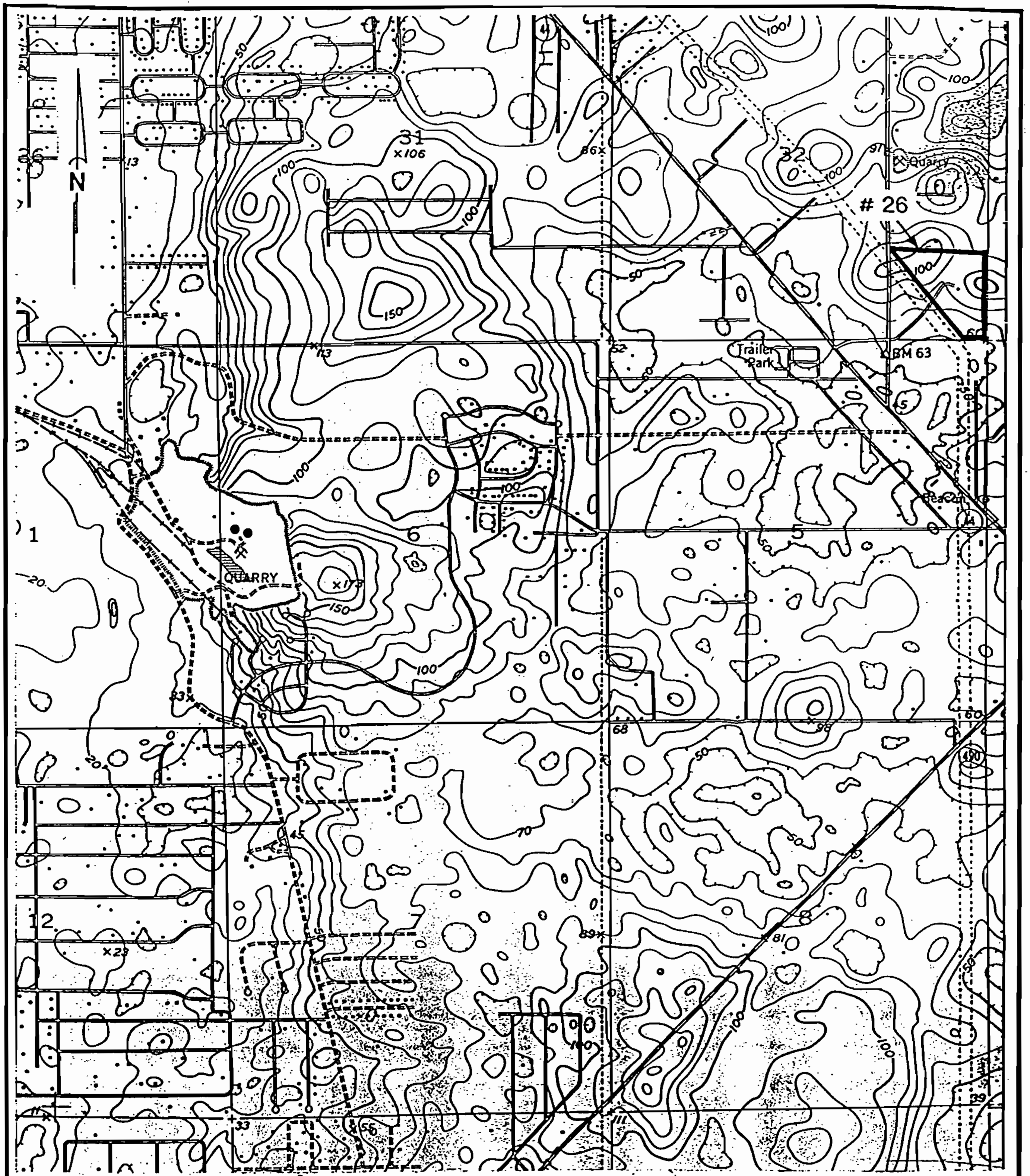


ENSR™

ENSR CONSULTING & ENGINEERING

FIGURE 1-1
FGTC'S GAS TRANSMISSION SYSTEM
FLORIDA GAS TRANSMISSION COMPANY
FLORIDA

DRAWN:	SJF/SH	DATE:	2-11-93	PROJECT NUMBER:	
APPV'D:		REVISED:	2-26-93	6792-068-035	



0 2000 4000

SCALE IN FEET

REFERENCE: U.S.G.S. Quadrangle Map for
Homosassa,
Florida, 1988.

TOPO

ENSR™

ENSR CONSULTING AND ENGINEERING

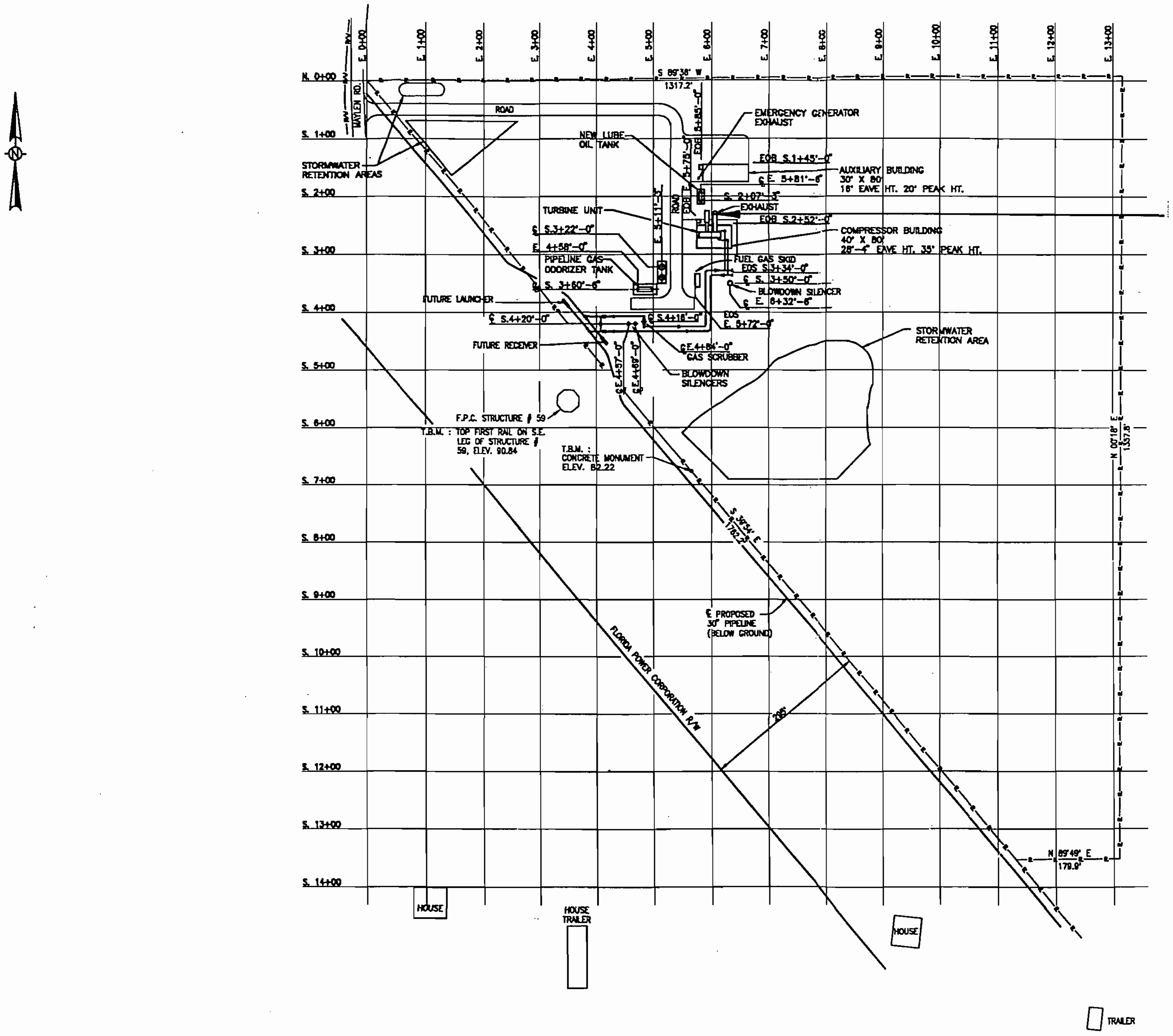
FIGURE 1–2
SITE LOCATION MAP
COMPRESSOR STATION #26
FLORIDA GAS TRANSMISSION CO.
HOMOSASSA, FLORIDA

DRAWN BY: SJF/SH	DATE: 01-11-93	PROJECT NUMBER: 6792-068-035
CHK'D.BY:	REVISED: 3-19-93	

ATTACHMENT 2

Plot Plan

AIR EMISSIONS PLOT PLAN C/S 26
Source I.D. No. 40 TPA 52025101



EXHAUST STACK, UNIT 01 - I.D. NO. 40 TPA 52025101

ARMELLINI ENGINEERING, INC
TULSA OKLAHOMA
JOB NUMBER 1092-918

NO.	REVISION – DESCRIPTION	BY	DATE	CHK'D	APP'D

DWG. STATUS	CHECKED BY	CHECKED DATE	APPROVED BY	APPROVED DATE	BY	DATE
PREL'Y						
BID						
CONSTR.						
CADDS	PLOT DATE: 11/05/93 DWG. V:\WORK\S21075\S\S01AP26					

WORK ORDER NUMBER S21075
P.L. OR SOL. ACCOUNT NUMBER
1994 CONSTRUCTION
DRAWN JLF 6-29-93
SCALE 1"=100'

Florida Gas Transmission Company
Houston, Texas

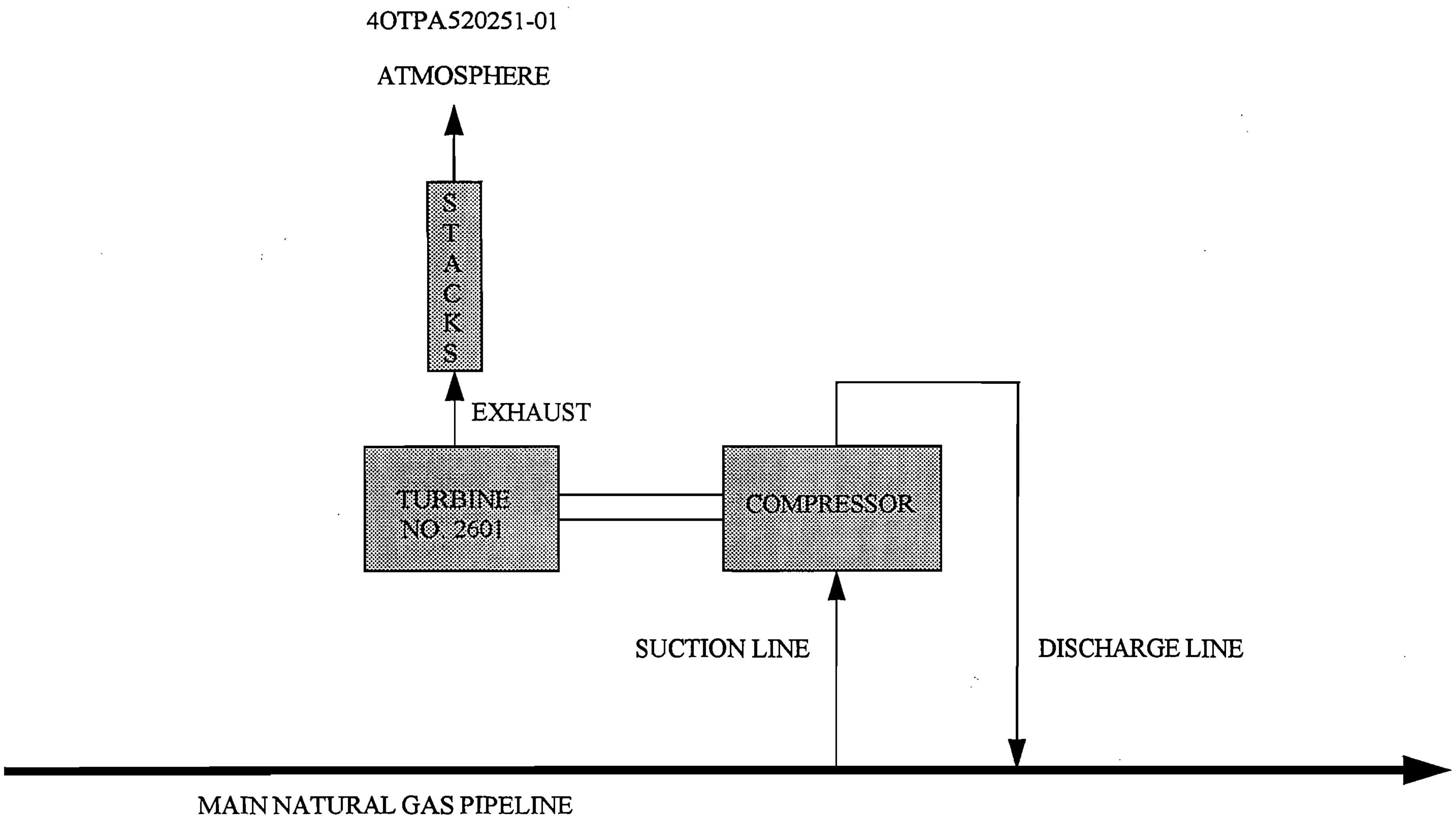
COMPRESSOR STATION NO. 26
AIR PERMIT SITE PLAN
CITRUS COUNTY, FLORIDA

ENRON OPERATIONS CORP.

DRAWING NUMBER SO-1AP

ATTACHMENT 3

Process Flow Diagrams

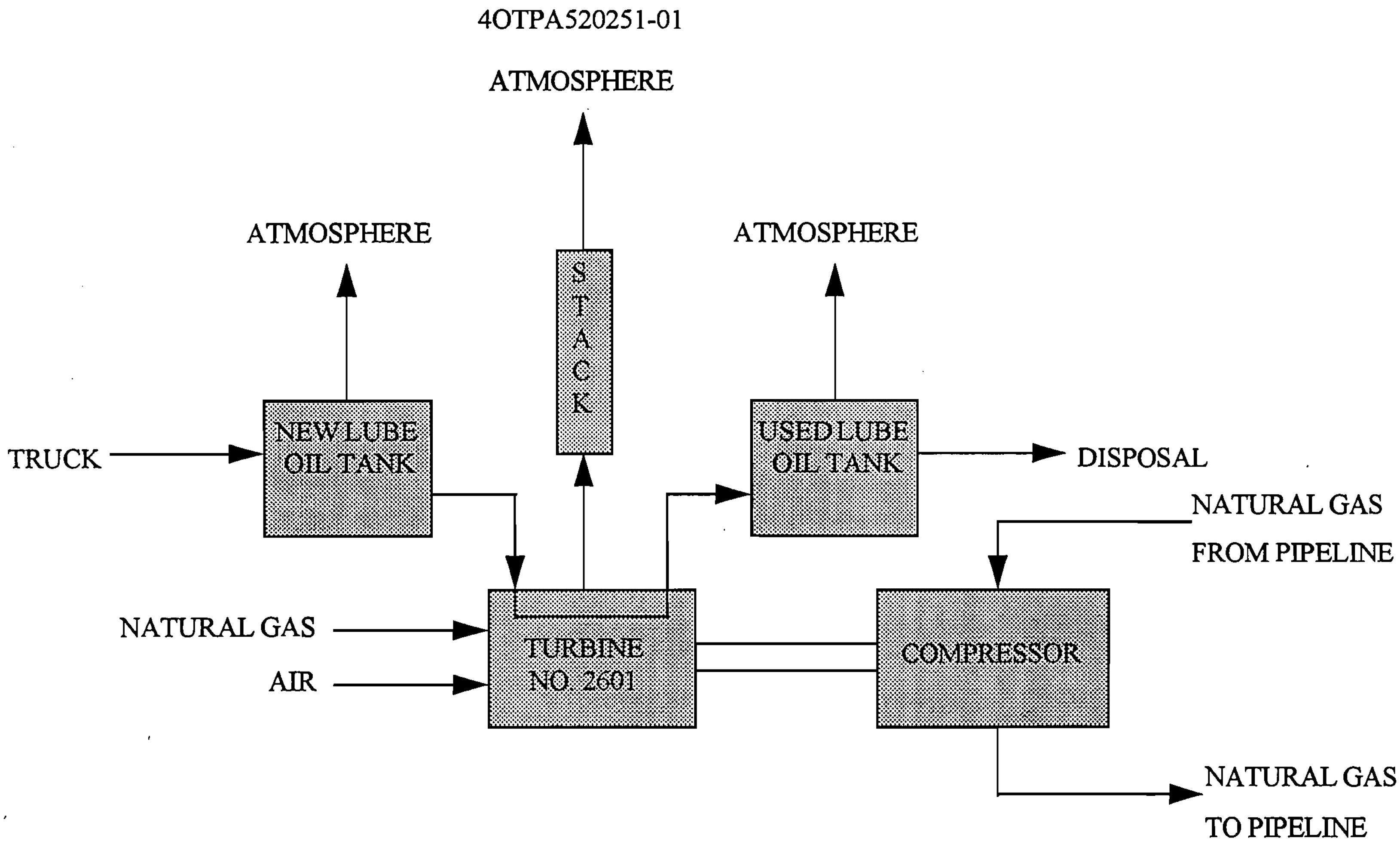


AQMcs

DATE: 29 MAR 95

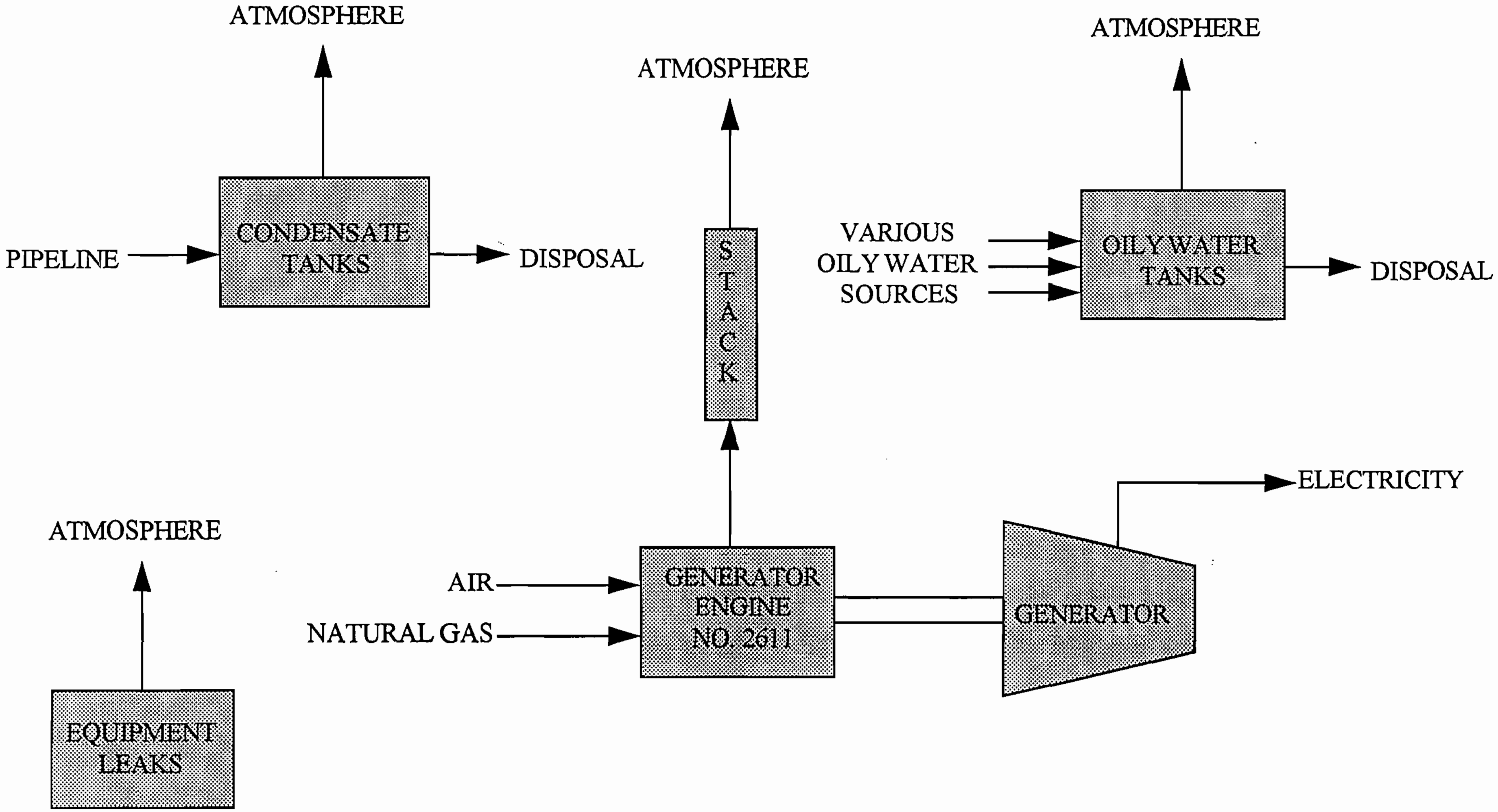
VDP

PROCESS FLOW DIAGRAM FOR STATION 26



AQMcs	DATE: 27 MAR 95	**VDP**

PROCESS FLOW DIAGRAM FOR UNIT 2601



AQMcs
DATE: 29 MAR 95
VDP

PROCESS FLOW DIAGRAM FOR UNITS 2601 UTILITIES

ATTACHMENT 4

Typical Fuel Analyses

ANALYSIS

```
DATE: 05/03/94            ANALYSIS TIME:    345          STREAM SEQUENCE: 1
TIME:     11:07           CYCLE TIME:       360          STREAM#:       1
ANALYZER#:          1     MODE:             RUN          CYCLE START TIME: 11:01

COMP NAME COMP CODE           MOLE %          GAL/MCF**          B.T.U.*          REL DEN*

HEXANE +      151              0.087           0.0361              4.49            0.0028
PROPANE       152              0.437           0.1204             11.02            0.0087
I-BUTANE      153              0.101           0.0331              3.30            0.0020
N-BUTANE      154              0.092           0.0291              3.02            0.0019
IPENTANE      155              0.040           0.0147              1.61            0.0010
NPENTANE      156              0.025           0.0091              1.01            0.0006
NITROGEN      157              0.385           0.0421              0.00            0.0037
METHANE       158             95.242          16.1435            964.13            0.5275
CO2           159              0.742           0.1265              0.00            0.0113
ETHANE        160              2.848           0.7619             50.52            0.0296

TOTALS                       100.000          17.3185           1039.10            0.5871

* @ 14.730 PSIA & UNCORRECTED FOR COMPRESSIBILITY

** @ 14.730 & 60 DEG. F

COMPRESSIBILITY FACTOR (1/Z)                                       = 1.0022
DRY    B.T.U. @  14.730 PSIA & 60 DEG. F CORRECTED FOR (1/Z) = 1041.4
REAL RELATIVE DENSITY                                              = 0.5881
UNNORMALIZED TOTAL                                                 = 100.00
ANALOG INPUT CHANNEL  1 =  H 2 S       140                         = .15029
ANALOG INPUT CHANNEL  2 =  WATER       144                         = 3.7802

ACTIVE ALARMS

NONE
```

FLORIDA GAS TRANSMISSION CO.

BROOKER LAB- Main Line

STANDARD GAS 1041.8 / 0.5939

CERTIFIED VALUE BTU 1041.9 GRAV. 0.5939

TOTAL SULFUR 0.03 GR/CCF H^2S 0.02 GR/CCF

H^2O 2.6 #/MMCF BY Ron [illegible]

```
                                   ANALYSIS


 DATE: 12/01/93            ANALYSIS TIME:    345          STREAM SEQUENCE: 12
 TIME:     12:38           CYCLE TIME:       360          STREAM#:      1
 ANALYZER#:           1    MODE:             RUN          CYCLE START TIME: 12:32

 COMP NAME COMP CODE          MOLE %          GAL/MCF**          B.T.U.*          REL DEN*

 HEXANE +      151            0.076            0.0333             3.92            0.0025
 PROPANE       152            0.580            0.1599            14.64            0.0088
 I-BUTANE      153            0.119            0.0388             3.87            0.0024
 N-BUTANE      154            0.126            0.0398             4.12            0.0025
 IPENTANE      155            0.041            0.0150             1.64            0.0010
 NPENTANE      156            0.026            0.0094             1.04            0.0006
 NITROGEN      157            0.460            0.0504             0.00            0.0044
 METHANE       158           94.190           15.9651           953.48            0.5217
 CO2           159            0.747            0.1273             0.00            0.0114
 ETHANE        160            3.635            0.9724            64.48            0.0377

 TOTALS                     100.000           17.4114          1047.20            0.5931

* @ 14.730 PSIA & UNCORRECTED FOR COMPRESSIBILITY

** @ 14.730 & 60 DEG. F

 COMPRESSIBILITY FACTOR (1/Z)                                        = 1.0023
 DRY    B.T.U. @  14.730 PSIA & 60 DEG. F CORRECTED FOR (1/Z) = 1049.6
 REAL RELATIVE DENSITY                                               = 0.5942
 UNNORMALIZED TOTAL                                                  =   99.97

ACTIVE ALARMS

NONE
```

FLORIDA GAS TRANSMISSION CO.

BROOKER LAB- WeT

STANDARD GAS 10469 0.5940

CERTIFIED VALUE BTU 1042.0 GRAV. 0.5940

TOTAL SULFUR 0.15 GR/CCF H^2S 0.08 GR/CCF

H^2O 28 #/MMCF BY

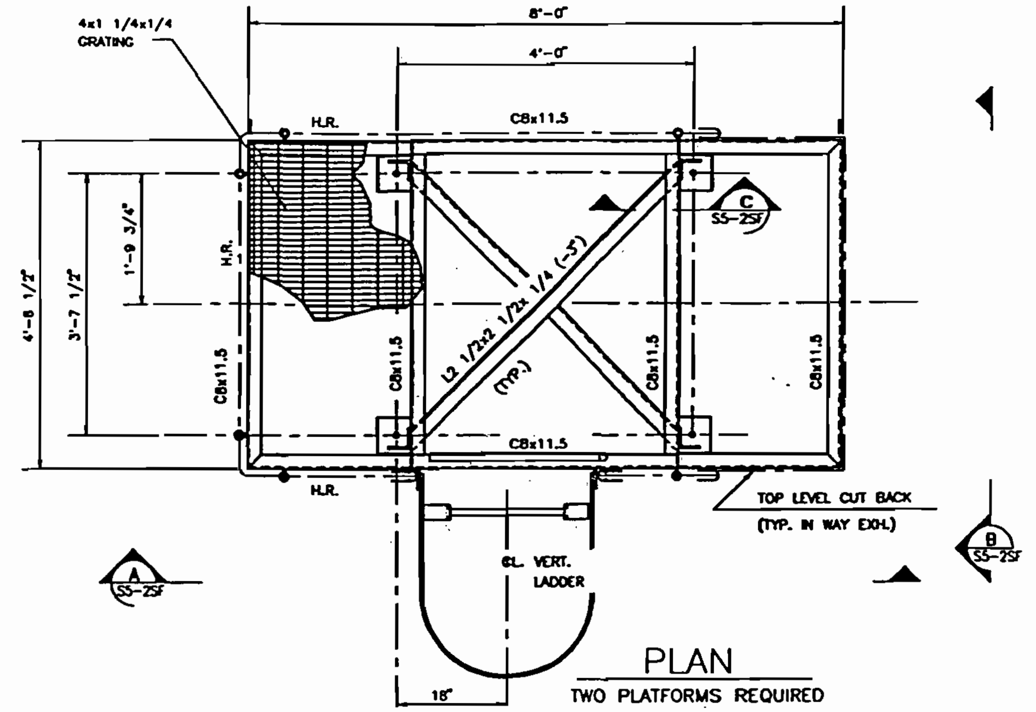
```
                                  ANALYSIS.

DATE: 01/12/93             ANALYSIS TIME:    345        STREAM SEQUENCE: 12
TIME:      12:32           CYCLE TIME:       360        STREAM#:      1
ANALYZER#:          1      MODE:             RUN        CYCLE START TIME: 12:26

COMP NAME COMP CODE           MOLE %          GAL/MCF**         B.T.U.*          SP. GR.*

HEXANE +      151             0.073            0.0319             3.76            0.0024
PROPANE       152             0.930            0.2561            23.44            0.0142
I-BUTANE      153             0.189            0.0618             6.16            0.0038
N-BUTANE      154             0.228            0.0718             7.45            0.0046
IPENTANE      155             0.057            0.0210             2.31            0.0014
NPENTANE      156             0.040            0.0144             1.60            0.0010
NITROGEN      157             0.810            0.0000             0.00            0.0078
METHANE       158            93.511            0.0000           946.61            0.5180
CO2           159             0.774            0.0000             0.00            0.0118
ETHANE        160             3.388            0.9064            60.10            0.0352
  nitc                       4.905
TOTALS                      100.000            1.3634          1051.41            0.6000

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

** @ 14.730 & 60 DEG. F

 COMPRESSIBILITY FACTOR (1/Z)                                   = 1.0023
 DRY B.T.U. @  14.730 PSIA & 60 DEG. F CORRECTED FOR (1/Z)      = 1053.8
 SAT B.T.U. @  14.730 PSIA & 60 DEG. F CORRECTED FOR (1/Z)      = 1035.5
 REAL SPECIFIC GRAVITY                                          = 0.6011
 UNNORMALIZED TOTAL                                             = 100.17

ACTIVE ALARMS

NONE
```

FLORIDA GAS TRANSMISSION CO.
BROOKER LAB- WET
STANDARD GAS 1041.9 / 0.5940
CERTIFIED VALUE BTU 1042.0 GRAV. 0.5940
TOTAL SULFUR 0.48 GR/CCF H^2S 0.03 GR/CCF
H^2O 2.7 #/MMCF BY Bill Stinson

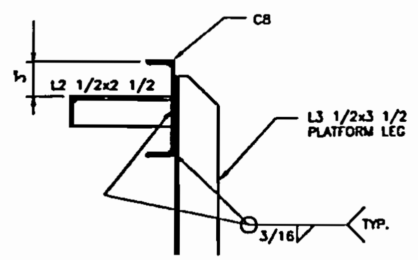
RECEIVED
JAN 14 1993
TECH OPERATIONS

ATTACHMENT 5

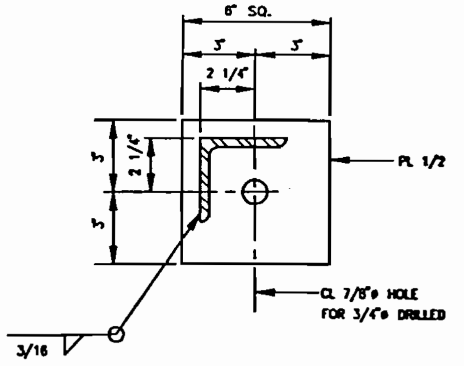
Sampling Facility Drawings



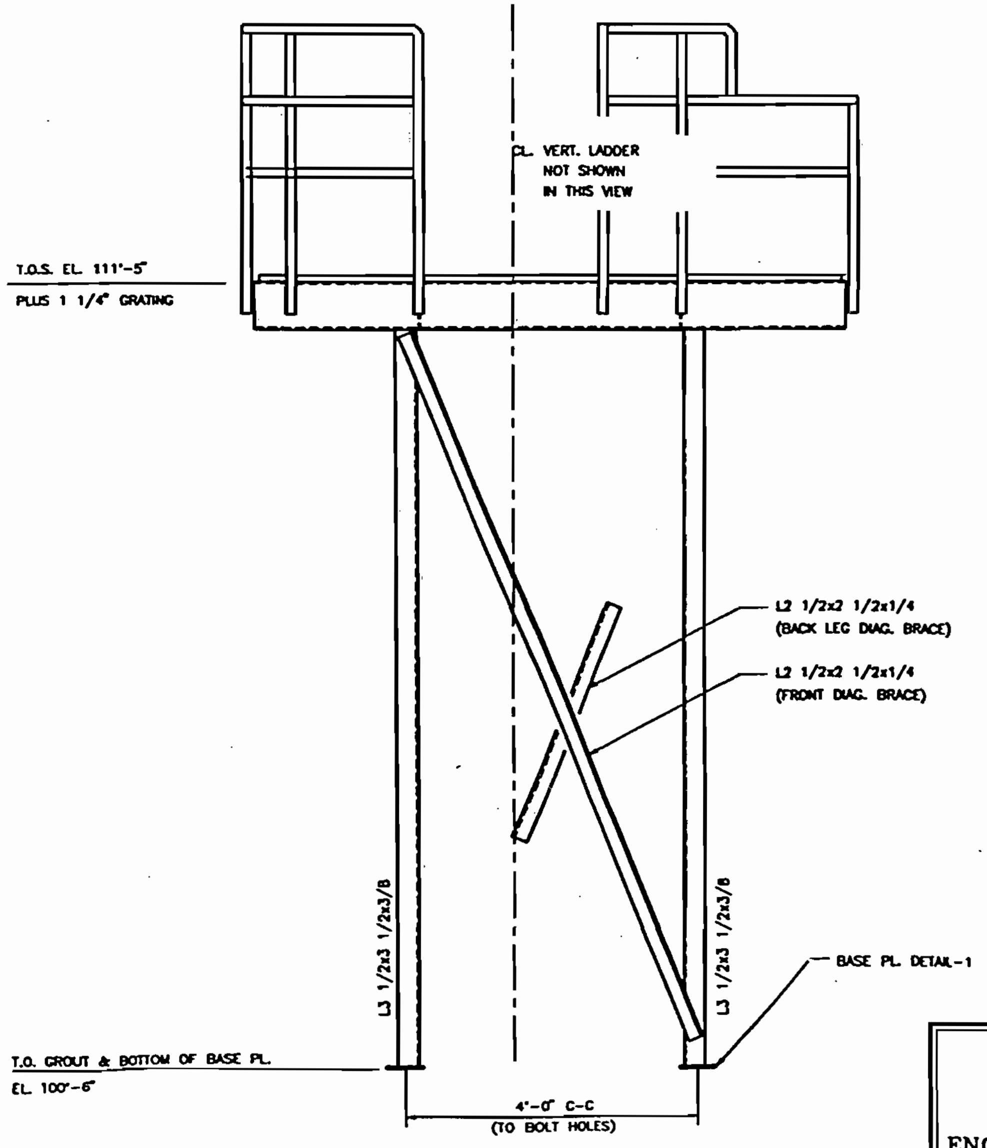
PLAN
TWO PLATFORMS REQUIRED



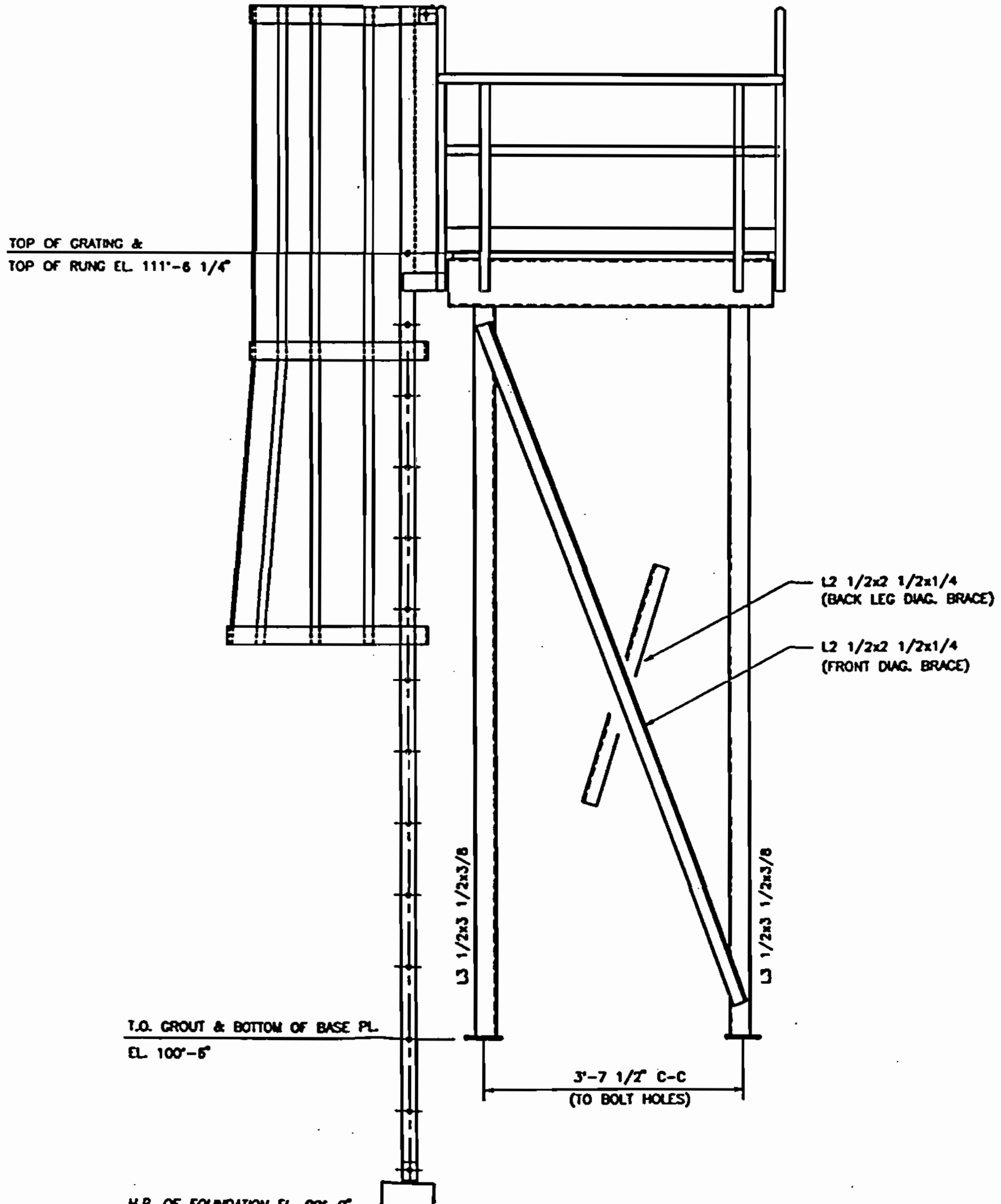
SECTION B
S5-2SF



DETAIL-1
TYPE 1 BASE PLATE



SECTION A
S5-2SF



SECTION B
S5-2SF

REFERENCE DRAWINGS:

S0-1C	GENERAL NOTES
S5-2B	COMPRESSOR BUILDING FOUNDATION PLAN
S5-2SJ-1	STANDARD STRUCTURL STEEL HANDRAIL DETAILS
S5-2SJ-2	STANDARD STRUCTURL STEEL LADDER DETAILS

AEI
ARMELLINI
ENGINEERING, INC
TULSA OKLAHOMA
JOB NUMBER 1092-918

NO.	REVISION - DESCRIPTION	BY	DATE	CHK'D	APP'D
1	ISSUED FOR CONSTRUCTION	HDM	11/01/93	JRL	FW

DWG. STATUS	CHECKED BY	DATE	APPROVED BY	DATE	BY	DATE
APP.						
PREL'Y						
BID						
CONSTR.	JRL	11/01/93	FW	11/01/93		
CADDS	PLOT DATE:					
	DWG. S52SF26					

WORK ORDER NUMBER S21025
P.L. OR STA. ACCOUNT NUMBER
1993 CONSTRUCTION

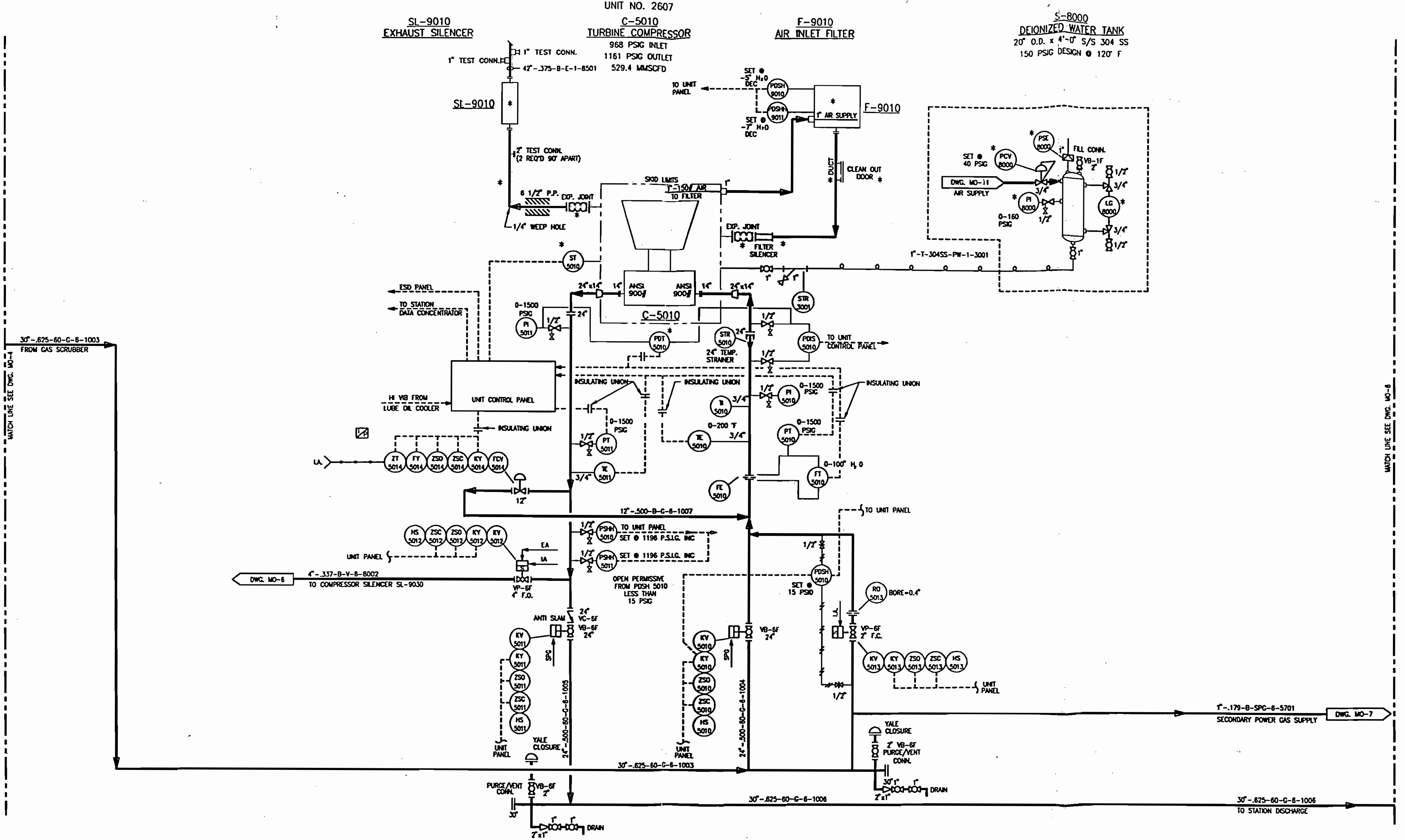
	BY	DATE
DESIGN		
DRAWN	HDM	10/29/93
AS BUILT		
SCALE	3/4"=1'-0"	

Florida Gas Transmission Company
Houston, Texas

COMPRESSOR STATION NO. 26
EXHAUST SILENCER WORK PLATFORM
PLAN, SECTIONS & DETAILS
CITRUS COUNTY, FLORIDA

ENRON
GAS PIPELINE
GROUP

DRAWING NUMBER S5-2SF



* VALVES & INSTRUMENTS TO BE SUPPLIED
BY VENDOR AND INSTALLED
BY CONTRACTOR

NO.	REVISION - DESCRIPTION	BY	DATE	CHK'D	APP'D
1	ISSUED FOR CONSTRUCTION	DMP	11/01/93	KS	FWD
0	ISSUED FOR BID	BL	9/07/93	KS	FWD

DWG. STATUS	CHECKED BY	CHECKED DATE	APPROVED BY	APPROVED DATE	BY	DATE
APP.	KS	7-9-93	PA	7/9/93		
PREL'Y						
BID	KS KS	8-15-93 9-7-93	PA PA	8-15-93 9-7-93		
CONSTR.						
CADDS	PLOT DATE: DWG. V:\WORK\S21075\M\MO5-26					

WORK ORDER NUMBER S21075
P.L. OR STA. ACCOUNT NUMBER
1994 CONSTRUCTION

	BY	DATE
DESIGN		
DRAWN	RJS	1/93
AS BUILT		
MICROFILM		
FILE NO.	M-305	
SCALE	NONE	

Florida Gas Transmission Company
Houston, Texas

COMPRESSOR STATION NO. 26
PIPING AND INSTRUMENT DIAGRAM
COMPRESSOR
CITRUS COUNTY, FLORIDA

ENRON OPERATIONS CORP.

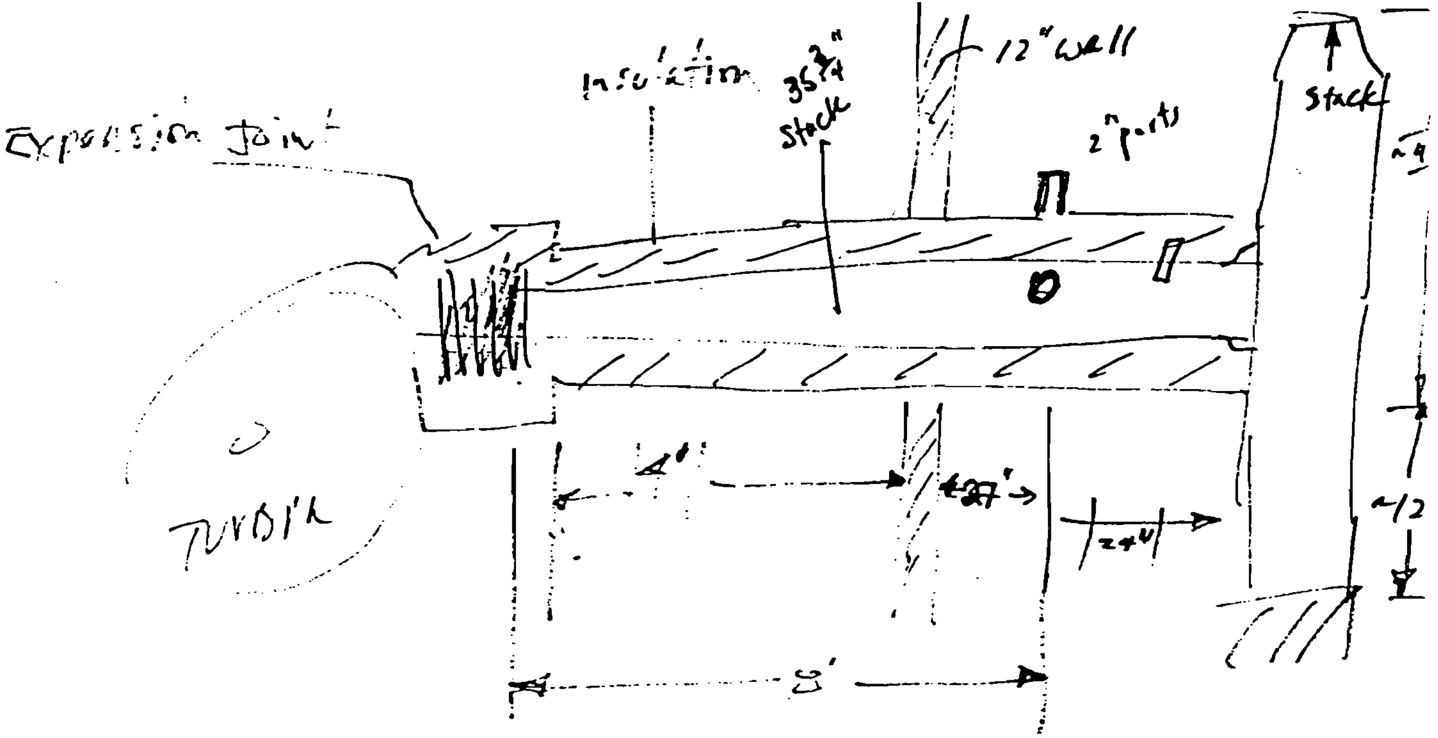
DRAWING NUMBER MO-5

Circular Stack Sampling Traverse Point Layout
(EPA Method 1)

Date: 3-21-95
Plant: Stat 26, FET
Source: Solar Turbines
Technician(s) CC/LB/AB

Port + Stack ID: ~~64~~ 46 1/2 in.
Port Extension 10.75 in.
Stack ID: 35.75 in.
Stack Area 6.971 ft²
Total Req'd Traverse Pts. 16
No. of Traverse Pts. 8 /diam.
No. of Traverse Pts. 8 /port

Stack Diagram (Side View showing major unit components, dimensions and nearest upstream & downstream flow disturbances)



Traverse Point Number	Length Factor (% of diameter) Number of traverse pts./diameter				Distance from Reference Point (inches)
	4	6	8	12	
1	6.7	4.4	3.2	2.1	1.144" + 10.75 = ~~12.19~~ 11.8
2	25.0	14.6	10.5	6.7	3.75 + 10.75 = 14.5
3	75.0	29.6	19.4	11.8	6.93
4	93.3	70.4	32.3	17.7	11.54
5		85.4	67.7	25.0	24.20
6		95.6	80.6	35.6	28.81
7			89.5	64.4	31.99
8			96.8	75.0	34.60
9				82.3	
10				88.2	
11				93.3	
12				97.9	

1

Circular Stack Sampling Traverse Point Layout

2 ~~(EPA Method 1)~~

O2 Travers O2 Trav / (M-1)

3 Date: 3/21/95

4 Plant: Sta. 24

5 Source: Solar Taurus 6500

6 Technician(s) CC / LB / AB III

Port + Stack ID: 53 1/2 / (46 1/2) in.

Port Extension 17 3/4 / (10 3/4) in. 9 3/4 + 8

Stack ID: 35.75 ( ) in.

Stack Area 6.971 ft²

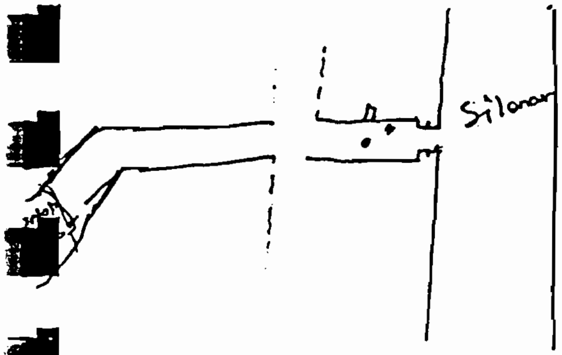
Total Req'd Traverse Pts. 16 53 1/2

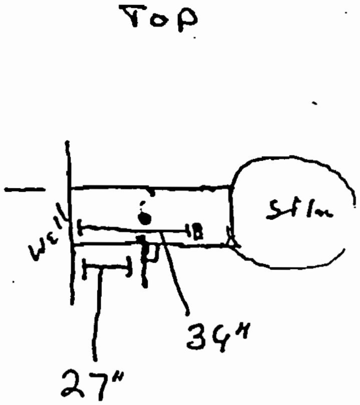
7 No. of Traverse Pts. 8 /diam.

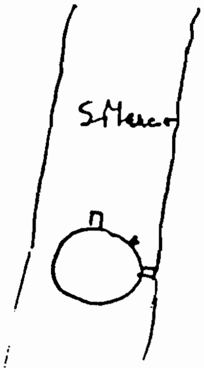
No. of Traverse Pts. 8 /port

8 **Stack Diagram** (Side View showing major unit components, dimensions and nearest upstream &

9 downstream flow disturbances)







Traverse Point Number	Length Factor (% of diameter) Number of traverse pts./diameter				Distance from Reference Point (inches)	O2 M-20	M-1
	4	6	8	12			
1	6.7	4.4	3.2	2.1	1.144 +	17.75'	+ 10.75
2	25.0	14.6	10.5	6.7	3.75 +	"	
3	75.0	29.6	19.4	11.8	6.93		
4	93.3	70.4	32.3	17.7	11.54		"
5		85.4	67.7	25.0	24.20		"
6		95.6	80.6	35.6	28.81	"	
7			89.5	64.4	31.99		
8			96.8	75.0	34.60		
9				82.3			
10				88.2			
11				93.3			
12				97.9			

ATTACHMENT 6

Emissions Test Report

TEST REPORT
on
EXHAUST EMISSIONS
from a
SOLAR TAURUS 60S TURBINE ENGINE
at
COMPRESSOR STATION NO. 26
located near
LECANTO, FLORIDA

Prepared For

FLORIDA GAS TRANSMISSION COMPANY

March 1995

Cubix Job No. 2913

Prepared by

Cubix Corporation

FLORIDA OFFICE
2106 NW 67th Place, #7
Gainesville, Florida 32653
904-378-0332 TEL
904-378-0354 FAX

CORPORATE HEADQUARTERS
9225 Lockhart Highway
Austin, Texas 78747
512-243-0202 TEL
512-243-0222 FAX

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INTRODUCTION

Exhaust emissions from a Solar Taurus natural-gas fired combustion turbine equipped with compressors were tested at Florida Gas Transmission Company's Compressor Station No. 26 located near Lecanto in Citrus County, Florida. Nitrogen oxides (NOx), carbon monoxide (CO), total hydrocarbons (THC), and other combustion products were measured in the exhaust of the engine. The tests were conducted by Cubix Corporation's Southeastern Branch from Gainesville, Florida on March 21, 1995.

The purpose of this testing was to determine the emission compliance status of the turbines with regard to the construction permit, Florida Department of Environmental Protection (FDEP) Permit No. AC 09-229441 and the New Source Performance Standards (NSPS) requirements of 40 CFR 60, Subpart GG. Three sixty-plus minute test runs were conducted documenting turbine and compressor operational data, emission concentrations, and mass emission rates.

The tests followed the principles of the procedures set forth in the Code of Federal Regulations, Title 40, Part 60, Appendix A, Methods 1, 2, 3a, 4, 9, 10, 19, 20, and 25a. Table 1 summarizes the background information pertinent to these tests.

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

Leonard

Cubix Corporation

W Duane Pierce for

Florida Gas Transmission Co.

TABLE 1:
Background Data

Source Owner:	Florida Gas Transmission Company 601 South Lake Destiny Drive Maitland, Florida 32751 (407) 875-5816 TEL (407) 875-5896 FAX Attn: Allan Weatherford
Test Contractor:	Cubix Corporation 2106 NW 67th Place, Ste. 7 Gainesville, Florida 32653 (904) 378-0332 TEL (904) 378-0354 FAX Attn: Cory Criswell
Process Description:	A Solar Taurus Model 60S natural gas-fired turbine used to compress natural gas for pipeline transmission.
Test Date:	March 21, 1995
Location:	Compressor Station No. 26 is located 2 miles NW of Lecanto on State Route 44 in Citrus County, Florida (Permit Coordinates: 30°09'50" North/ 83°36'22" West).
Emission Sampling Points:	FDEP Natural Gas Turbine Engine No. 2601. The exhaust stack has two 2" sample ports located perpendicular to each other in the horizontal run of exhaust pipe before the silencer. These ports are located outside the engine room (see Appendix A for stack diagram).
Test Participants:	**Florida Gas Transmission** Allan Weatherford Fred Morrison Roy Smith

ENRON/SONAT Corporation
V. Duane Pierce

Cubix Corporation
Cory Criswell
Leonard Brenner
L. Allen Brinkley III

Test Methods:

EPA Method 1 for traverse point location

EPA Method 2 for stack gas velocity

EPA Method 3a for CO_2 concentrations

EPA Method 4 for stack gas moisture content

Stoichiometric calculations also used for moisture content

EPA Method 9 for visual emission observations

EPA Method 10 for CO concentrations

EPA Method 19, stoichiometric volumetric flow calculations based on O_2 and CO_2 "F-factors"

EPA Method 20 for NOx and O_2 concentrations.

EPA Method 25a for THC concentrations

SUMMARY OF RESULTS

Florida Gas Transmission Company (FGT) owns and operates Compressor Station No. 26 in Citrus County, Florida. At this station a Solar Taurus combustion turbine/compressor unit was recently installed for compression of pipeline gas. The Solar turbine is permit designated as FDEP Natural Gas Turbine Engine No. 2601. The emissions from this unit are the subject of this report.

Three sixty-plus minute test runs were conducted on the turbine. NOx, CO, THC, O_2, and CO_2 emissions were continuously monitored during each of these runs. During the first test run on each turbine, a sixteen point O_2-traverse was performed within the stack to determine the eight lowest points of O_2 concentration. No O_2 stratification was found, therefore, eight random traverse points were chosen in the following runs for sampling. Additionally, the opacity of the stack gas was visually monitored during each run. FGT personnel supplied brake-horsepower data corrected to ISO Day conditions using a Solar designed computer program. Using these corrected data, the unit operated within 90% of the 6500 bhp ISO Day rating set in the FDEP permit.

Table 2 contains a tabular summary of the testing results for Unit 2601. This summary table contains operating data recorded during the test from the turbines' monitoring and control system (supplied by FGT personnel), ambient conditions, the measured emissions, and permit specifications. Test Run 26C-1 is reported twice. The difference between the two reportings are the NOx emission results. This was done to comply with EPA Method 20, see *Quality Assurance Acitivities* located in this report. The mass emission rates for NOx, CO, and THC are reported in terms of lbs/hr, tons/yr, and g/bhp-hr.

The fuel sulfur content analysis, concentration in grains of sulfur per 100 SCF of fuel gas, is contained in Appendix C of this report. The fuel was analyzed for fuel sulfur content via ASTM D-3246 by Florida Gas Transmission's Brooker Laboratory. The SO_2 emission rates, reported in lbs/hr and tons/yr, were calculated from the results of this analysis and the measured fuel flow rate recorded during the tests.

Visual emission observations of the exhaust stack of each unit were performed by an FDEP Smoke School certified visual emission observer. One-hour visible emission test runs were conducted simultaneously with the gaseous testing. The maximum permitted visual emission for each unit is 10%

opacity. During the testing, no visual emissions were observed, the opacity was 0%. "Visual Emissions Observation Forms" and the observer certifications are located in Appendix H.

Volumetric flow and mass emission rates were determined by two different techniques. The first technique employed a physical measurement of exhaust flow (EPA Methods 1-4), which included measurements of stack gas molecular weight, stack gas moisture, stack gas temperature, atmospheric pressure, and stack gas static and differential pressures. This measurement technique was stipulated in the FDEP permit.

The second technique employed a stoichiometric calculation (EPA Method 19) based on measurements of diluent gas (O_2 or CO_2) concentration, "F-factors" determined from fuel composition, and the turbine fuel consumption rate. The "F-factor" method was performed for two specific reasons. The first was to verify the accuracy of the physical measurement technique. Generally, measuring turbine exhaust velocity with a pitot tube in a location meeting EPA Method 1 criteria with turbulent, pulsating flow, (i.e. close to a turbine exhaust outlet and before a silencer), can produce inaccurate flow rate values. The second reason was to provide comparative data to FDEP for future consideration of EPA Method 19 as an alternative method for measuring volumetric flow at this site. The results of this comparison showed that the two flow measurement techniques varied an average of 10.5%.

Both EPA Methods 1-4 and EPA Method 19 were used for determining exhaust volumetric flow rates. Pollutant mass emission rates were calculated using the higher volumetric flow rates determined by EPA Methods 1-4. FGT supplied the turbine brake-horsepower data used in the determination of the emission rate units g/bhp-hr.

Examples of mass emission rate calculations as well as other calculations necessary for the presentation of the results of this section are contained in Appendix B. The field data sheets used for collection of data necessary for presentation of these results are included in Appendix A. Operational data obtained during the testing is located in Appendix D. Appendix G contains a copy of the strip chart records of the analyzer monitored emission concentrations.

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

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

PROCESS DESCRIPTION

Florida Gas Transmission Company, an ENRON/SONAT affiliate, is the owner and operator of Compressor Station No. 26 located near Lecanto in Citrus County, Florida. A turbine/compressor unit is used for compression of natural gas for transport through the company pipeline. The exhaust emissions from this unit, Unit No. 2601, were measured to determine compliance with the FDEP construction permit and EPA NSPS requirements. This section of the report provides a brief description of the unit.

The unit was manufactured by Solar Turbines Incorporated, is a Taurus Model 60S which bears the ID #TASBAA-1500-210 and Serial #0143T. It is a natural gas-fired simple cycle, two shaft turbine/compressor unit used to compress pipeline natural gas. Additionally, this unit is equipped with Solonox combustors, Solar turbine emission control technology, for dry, low NOx combustion.

The manufacturer has rated this unit at 6500 bhp for the standard conditions of 101.3 Kpa and 288 °K (ISO Day conditions). It is permitted to operate continuously for 8760 hours per year. Maximum natural gas fuel consumption is permitted at 0.0684 MMCF/hr with a heat input of 71.52 MMBtu/hr for each turbine engine.

The exhaust sample ports, per the criteria of EPA Method 1, were located in the straight horizontal section of exhaust pipe approximately 24 inches (0.67 of a diameter) upstream of the silencer and 96 inches (2.7 diameters) downstream of the nearest flow disturbance. The exhaust pipe diameter was 35.75 inches. FGT installed a permanent platform for sample port access. Appendix A contains a field sketch of the stack configuration and sample port locations.

ANALYTICAL TECHNIQUE

The emissions from a Solar turbine engine were measured to determine the quantity of emissions being emitted to the atmosphere under full load operating conditions. The sampling and analysis procedures used during these tests conformed with those outlined in The Code of Federal Regulations, Title 40, Part 60, Appendix A, Methods 1, 2, 3a, 4, 9, 10, 19, 20, and 25a. This section of the report describes the analytical techniques and procedures used during the testing.

The test matrix for each engine consisted of three sixty-plus minute test runs. Per EPA Method 20 requirements, an initial O_2-traverse was combined with Run 26C-1. Sixteen points in the stack cross section were measured for 4 minutes at each point. No stratification of oxygen was found in the stack cross section. Therefore, eight random points were sampled for a minimum of 4 minutes each in the following test runs. The stack gas was analyzed for NOx, CO, THC, O_2, and CO_2 by continuous emission monitors. All gas analyses were performed on a dry basis. Table 3 lists the instruments and detection principles used for these analyses.

Provisions were made to introduce the calibration gases to the instrumental monitors via two paths: 1) directly to the instruments via the sample manifold quick-connects and rotometers, and 2) through the complete sampling system including the sample probe, filter, heat trace, condenser, sample line, manifold, and rotometers. The former method was used for quick, convenient calibration checks. The latter method was used to demonstrate that the sample was not altered due to leakage, reactions, or adsorption within the sampling system (sample system bias check). A NOx standard calibration gas was introduced into the NOx analyzer directly. Then the response from the NOx analyzer was noted as the calibration gas was introduced at the probe. Any difference between the two responses in the instrument was attributed to the bias of the sample system. Following the span gas bias check, a zero gas bias check was performed on the NOx analyzer using nitrogen to check for any positive bias of the sample system. This span and zero bias check procedure was repeated for the O_2 analyzer.

The sampling and analysis system used to determine gaseous emission concentrations is depicted in Figure 1. Stack gas entered the system through a stainless steel probe with a glass wool filter. The sample was passed to ground level via a 40' long, 3/8-inch diameter heat-traced Teflon® line to a specially designed stainless steel minimum-contact condenser which dried the sample without removing NOx. The sample was then transported through a 130' long, 3/8" diameter Teflon® sample line via a stainless steel/Teflon® diaphragm pump and into the sample system manifold. From the manifold, the sample was partitioned to the analyzers through glass and stainless steel rotometers for flow control to the analyzers.

All instruments were housed in an air conditioned trailer-mounted mobile laboratory. Gaseous calibration standards were provided in aluminum cylinders with the concentrations certified by the vendor. EPA Protocol No. 1 was used to determine the cylinder concentrations where applicable (i.e. NOx calibration gases).

EPA Method 1 was used to determine the velocity and the EPA Method 20 O_2 traverse point locations. Pitot tube measurements were made at eight separate traverse points in each stack cross section. A depiction of the sample port locations and the pitot tube traverse point distances across the stack are in the stack diagram located in Appendix A.

EPA Method 2 was used for determination of stack gas velocity during each run. A pitot tube and inclined manometer were used to measure the differential pressure at each traverse point. The stack temperature was determined with a K-type thermocouple and digital thermometer. Cubix performed a cyclonic flow check prior to the first run and determined that the stack contained no cyclonic flow at the sample ports.

Stack volumetric flow rates were also determined using EPA Method 19 F-factors. These F-factors and the heating value of the fuel were based on a fuel analysis provided by FGT's in-house laboratory. The fuel analysis as well as Cubix's fuel calculation table can be found in Appendix C of this report.

The stack gas analyses for CO_2 and O_2 concentrations were performed in accordance with procedures set forth in EPA Method 3a and Method 20, respectively. Instrumental analyses were used in lieu of an Orsat or a Fyrite procedure due to the greater accuracy and precision provided by the instruments. The CO_2 analyzer was based on the principle of infrared absorption; and, the O_2 analyzer operated using a current generating micro-fuel cell which consumed oxygen.

The F_o calculation of EPA Method 3 (Section 4.4) was used to verify that the ratio of O_2 to CO_2 were within an acceptable range during runs 26C-1 through 26C-3. In all cases, the F_o fell within the expected values for natural gas.

EPA Method 4 was used to measure the moisture content of the stack gas. An impinger train was used in conjunction with a calibrated dry gas meter to pull a wet stack gas sample of at least 21 cu. ft. during each test run period. The moisture content was also estimated stoichiometrically for each test run based on the combustion moisture, excess air dilution, and ambient humidity in the combustion air.

EPA Method 20 procedures were used to determine concentrations of NOx (via chemiluminescence). NOx mass emission rates were calculated as if all the NOx was in the form of NO_2. This approach corresponds to EPA's convention, however, it tends to overestimate the actual NOx mass emission rates since the majority of NOx is in the form of NO which has less mass per unit volume (i.e. lbs. of emissions per ppmv concentration) than NO_2.

Opacity was determined via EPA Method 9. A one-hour opacity test run was performed concurrently with each gaseous compliance test run. The visual emission observer was certified by the Florida Department of Environmental Protection. Appendix H provides both the opacity observation sheets as well as observer certification documentation.

CO emission concentrations were quantified in accordance with procedures set forth in EPA Method 10. A continuous non-dispersive infrared (NDIR) analyzer was used for this purpose. This reference method analyzer was equipped with a gas correlation filter which removes any interferences from moisture, CO_2, and other combustion products.

Volatile organic compounds (VOC's) were not identified independently of total unburned hydrocarbons. Total hydrocarbons (THC) concentrations were quantified during the testing using Method 25a. The total hydrocarbons were continuously measured throughout each full load test run using a flame ionization detector (FID). The THC continuous analyzer was calibrated using methane standards in an air matrix. Therefore, the results included in this report are presented on a methane basis. Having the calibration standards in an air basis (i.e. 20.9% O_2) more closely matches the background matrix of the engine exhaust and helps to reduce the effect of O_2 synergism on flame ionization detectors.

All data from the continuous monitoring instruments were recorded on two synchronized 3-pen strip chart recorders (Soltec Model 1243). These recorders were operated at a chart speed of 30 centimeters/hour and record over a 25-centimeter width. Strip chart records may be found in Appendix G of this report.

Cubix personnel collected ambient absolute pressure, temperature and humidity data. A Bacharach sling psychrometer was used to determine ambient wet and dry temperatures and humidity conditions. An aircraft-type aneroid barometer (altimeter) was used to measure absolute atmospheric pressure.

Florida Gas Transmission also collected key operation data during each of the test runs and supplied it to Cubix. Key operational data collected included a fuel analysis, fuel flow, gas producer and turbine speeds, suction and discharge pressures, and ISO Day corrected brake-horsepower.

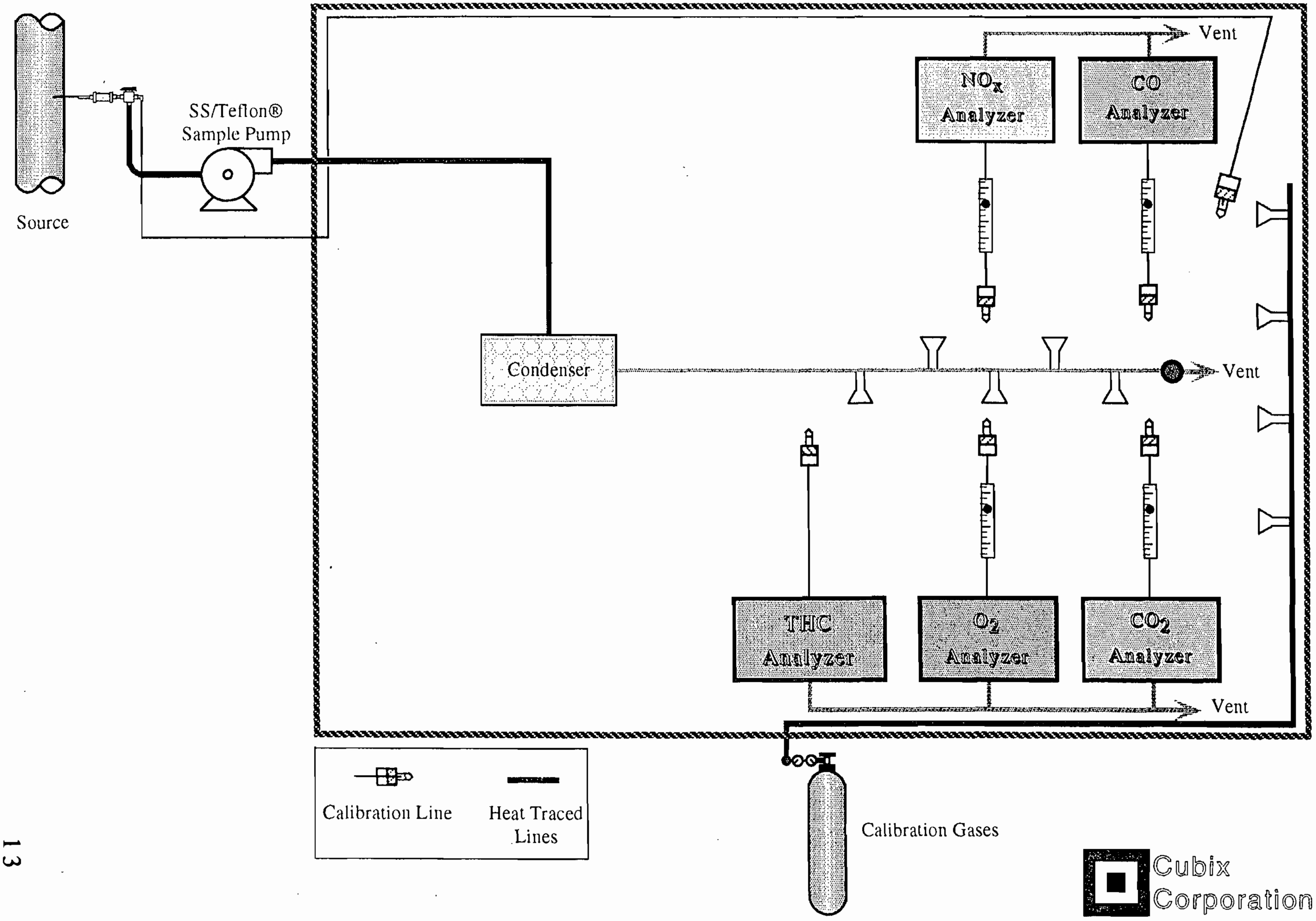
All emission calculations were conducted by a computer spreadsheet as shown in Table 2 of this report. Example calculations were performed manually using a hand-held calculator in order to verify the formulas used in the spreadsheet. Example calculations are located in Appendix B of this report.

TABLE 3: Analytical Instrumentation

Parameter	Model and Manufacturer	Common Use Ranges	Sensitivity	Response Time (sec.)	Detection Principle
NOx	TECO Model 10 AR	0-10 ppm 0-100 ppm 0-200 ppm 0-500 ppm 0-1,000 ppm 0-5,000 ppm	0.1ppm	1.7	Thermal reduction of NO_2 to NO. Chemiluminescence of reaction of NO with O_3. Detection by PMT. Inherently linear within 1% of full . scale.
CO	TECO Model 48	0-1 ppm 0-10 ppm 0-50 ppm 0-100 ppm 0-200 ppm 0-500 ppm 0-1000 ppm	0.1 ppm	60	Infrared absorption, gas filter correlation detector, microprocessor based linearization.
CO_2	Teledyne 731R	0-15%	0.03%	5.0	Non-dispersive infrared absorption, electronic linearization of a logarithmic signal (Beer's Law)
O_2	Teledyne 320 AR	0-5% 0-10% 0-25%	0.025% 0.05% 0.125%	15	Micro-fuel cell, inherently linear.
THC	JUM Model 3-300	0-10, 0-100, 0-1000, 0-10000 0-100000 ppm	10 ppb	2.0	Flame ionization of hydrocarbons inherently linear within 1% over the range of the analyzer

NOTE: Higher ranges available by sample dilution.
Other ranges available via signal attenuation.

FIGURE 1
SAMPLE SYSTEM DIAGRAM



QUALITY ASSURANCE ACTIVITIES

A number of quality assurance activities were undertaken before, during and after this testing project. This section of the report in conjunction with the documentation in Appendix E describes each of those activities.

Each instrument's response was checked and adjusted in the field prior to the collection of data via a multi-point calibration. The instrument's linearity was checked by first adjusting the instrument's zero and span responses with a zero gas (nitrogen) and an upscale calibration gas in the range of the expected concentrations. The instrument response was then challenged with other calibration gases of known concentration. For NOx, CO, O_2, and CO_2, the instrument's response was accepted as being linear if the response of the other calibration gases agreed within ± 2% span of the predicted values. (The response of the infrared absorption type CO and CO_2 analyzers is electronically linearized.) For THC, the instrument's response was accepted as being linear if the response of the other calibration gases agreed within 5% of each calibration gases' concentration.

Before and after each test run, the analyzers were checked for zero and span drift. This allows each test run to be bracketed by calibrations and documents the precision of the data just collected. The most strict criterion [EPA Method 20] for acceptable data is that the instrument drift is no more than 2% of the span value.

Following Run 26C-1, the NOx analyzer's zero drift response exceeded the 2% criterion. In accordance with 40 CFR 60, Appendix A, Method 20, Section 6.2.3. the nitrogen oxides measured during the test run were reported twice. The first reported NOx concentration was based upon the calibration prior to the test run. The second reported NOx concentration was based upon the post-test zero and span results (i.e. the recalibration data).

Interference response tests on the instruments were conducted by the instrument vendors and Cubix Corporation on the NOx, CO, and O_2 analyzers. The sum of the interference responses for H_2O, THC, CO, CO_2 and O_2 is less than 2 percent of the applicable full scale span value. The instruments used for the testing meet the performance specifications for EPA Methods 3a, 10 and 20. The results of the interference tests are available in Appendix E of this report.

The residence time of the sampling and measurement system was estimated using the pump flow rate and the sampling system volume. The pump's rated flow rate is 0.8 SCFM at 5 psig. The sampling system volume was approximately 0.15 SCF. Therefore, the minimum sample residence time was approximately 11 seconds.

The NOx and O_2 sampling and analysis systems were checked on-site for response time per the procedures outlined in EPA Method 20. The average NOx analyzer's response times were 41 seconds upscale and 42 seconds downscale for the sample system used with the 130' sample line and 40' heat trace. The O_2 analyzer's response times were 54 seconds upscale and 63 seconds downscale for the same sample system. Method 20 requires a minimum sample time per traverse point of 1-minute plus the average sample system response time. Cubix chose to use 4-minutes per point for the initial O_2 traverses on each turbine and 4 to 8-minutes per point during the gaseous constituent compliance tests.

The sampling system was leak checked by demonstrating that it could hold a vacuum greater than 10" Hg (>23 "Hg actual) for at least 1 minute with a decline of less than 1" Hg. A leak test was conducted after the sample system was set up (i.e. before testing began) and before the system was dismantled (i.e. after testing was completed). This test was conducted to insure that ambient air was not diluting the sampling system. No leakage was detected.

The absence of leaks in the gaseous constituent sampling system was also verified by a system bias check. The sampling system's integrity was tested by comparing the responses of the NOx analyzer to a calibration gas (and a zero gas) introduced via two paths as previously described in the *Analytical Techniques* section of this report. Any difference in the instrument responses by these two methods was attributed to sampling system bias or leakage. This bias check was conducted prior to testing. Examination of the strip chart excerpts and Instrumental Analysis Quality Assurance Data worksheet in Appendix E shows that the analyzer response via both sample paths agreed within 5%.

The efficiency of the NO_2 to NO converter in the NOx analyzer was checked by having the analyzer sample a mixture of NO in N_2 standard gas and zero air from a Tedlar® bag. When this bag is mixed and exposed to sunlight, the NO is oxidized to NO_2. If the NOx instrument's converter is 100% efficient, then the NOx response does not decrease as the NO in the bag is converted to NO_2. The criterion for acceptability is a demonstrated NOx converter efficiency greater than 90%. The strip chart excerpts that demonstrate the converter efficiency test are available in Appendix G. The above mentioned quality assurance worksheet of Appendix E also summarizes the results of the converter efficiency test.

The control gases used to calibrate the instruments were analyzed and certified by the compressed gas vendors to ±1% accuracy for all calibration gases. EPA Protocol No. 1 was used, where applicable (i.e. NOx gases), to assign the concentration values traceable to the National Institute of Standards and Technology (NIST), Standard Reference Materials (SRM's). The gas calibration sheets as prepared by the vendor are contained in Appendix F.

The pitot tube tips used during the testing were visually inspected to insure that they met the criteria of EPA Method 2. The pitot tube lines were leak checked in the field in accordance with EPA Method 2 guidelines each time connection to the manometer was made.

The dry gas meter used for the moisture capture impinger train was calibrated prior to testing in accordance with EPA Method 4. A standard dry gas meter traceable to NIST was used for this calibration. Calibration certification documentation of the dry gas meter can be found in Appendix F.

Appendix F also contains calibration data on the altimeter and thermocouple used during this testing.

Cubix collected and reported the enclosed test data in accordance with the procedures and quality assurance activities described in this test report. Cubix makes no warranty as to the suitability of the test methods. Cubix assumes no liability relating to the interpretation and use of the test data.

APPENDIX A:
Field Data Sheets

SIGN IN SHEET

JOB NAME: FGT

DATE: 3-21-95

LOCATION: Station 24

PERMIT # AC 09-229441

SOURCE(S): Solar 6500
Solar Taurus 60S

PARTICIPANTS
Cubix Corporation
ENRON
FGT

REPRESENTATIVES:

NAME	AFFLIATION	PHONE NUMBER
Cory Criswell	CUBIX	(904) 378-0372
Leonard Brenner	CUBIX	"
Allan Brinkley III	Cubix	"
Fred Morrison	Fl. Gas Transmission	904-527-1898
Allan Weatherford	FGT	(407) 875-5816
V. Duane Pierce	Enron	713-646-7323
Roy Smith	FGT	(407) 875-5848

Circular Stack Sampling Traverse Point Layout
(EPA Method 1)

Date: 3-21-95

Plant: Stat 26, FET

Source: Solar Turbines

Technician(s) CC/LB/AB

Port + Stack ID: ~~64~~ 46 1/2 in.

Port Extension 10.75 in.

Stack ID: 35.75 in.

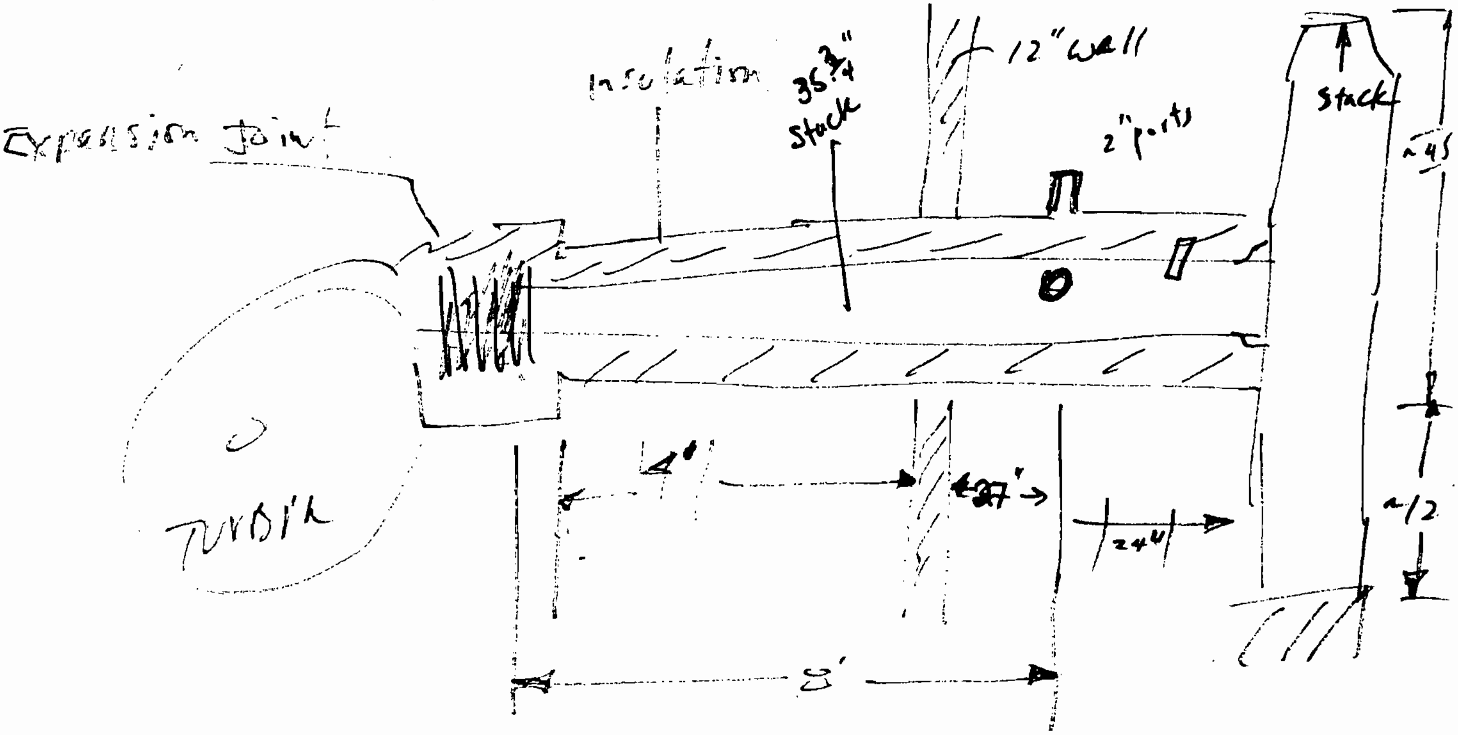
Stack Area 6.971 ft²

Total Req'd Traverse Pts. 16

No. of Traverse Pts. 8 /diam.

No. of Traverse Pts. 8 /port

Stack Diagram (Side View showing major unit components, dimensions and nearest upstream & downstream flow disturbances)



Traverse Point Number	Length Factor (% of diameter) Number of traverse pts./diameter				Distance from Reference Point (inches)	
	4	6	8	12		
1	6.7	4.4	3.2	2.1	1.144"	+ 10.75 = ~~12.19~~ 11.89
2	25.0	14.6	10.5	6.7	3.75	+ 10.75 = 14.5
3	75.0	29.6	19.4	11.8	6.93	
4	93.3	70.4	32.3	17.7	11.54	"
5		85.4	67.7	25.0	24.20	
6		95.6	80.6	35.6	28.81	
7			89.5	64.4	31.99	
8			96.8	75.0	34.60	
9				82.3		
10				88.2		
11				93.3		
12				97.9		

1 # Circular Stack Sampling Traverse Point Layout

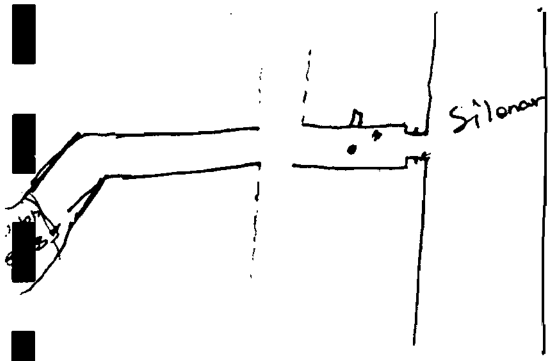
2 ~~(EPA Method 1)~~ O2 Travers O_2 Trav / (M-1)

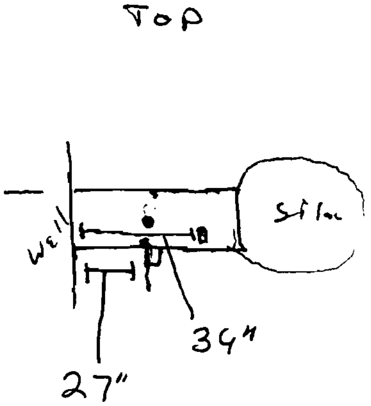
3 Date: 3/21/95
4 Plant: Stat. 24
5 Source: Solar Taurus 6500
6 Technician(s) CC / LB / ~~AB III~~

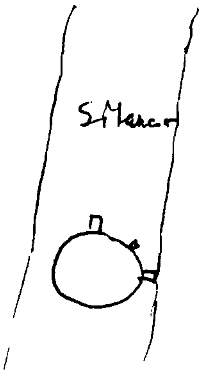
Port + Stack ID: 53 1/2 / (46 1/2) in.
Port Extension 17 3/4 / (10 3/4) in.
Stack ID: 35.75 in.
Stack Area 6.971 ft²
Total Req'd Traverse Pts. 16
7 No. of Traverse Pts. 8 /diam.
8 No. of Traverse Pts. 8 /port

9 3/4 + 8
53 1/2

9 **Stack Diagram** (Side View showing major unit components, dimensions and nearest upstream & downstream flow disturbances)







Traverse Point Number	Length Factor (% of diameter) Number of traverse pts./diameter 4	6	8	12	Distance from Reference Point (inches)	O_2 M-20	M-1
1	6.7	4.4	3.2	2.1	1.144 +	17.75	+ 10.75
2	25.0	14.6	10.5	6.7	3.75 +	"	"
3	75.0	29.6	19.4	11.8	6.93		"
4	93.3	70.4	32.3	17.7	11.54		"
5		85.4	67.7	25.0	24.20		"
6		95.6	80.6	35.6	28.81	"	
7			89.5	64.4	31.99		
8			96.8	75.0	34.60		
9				82.3			
10				88.2			
11				93.3			
12				97.9			

EPA Methods 1-4: Velocity, Moisture, and Molecular Weight

Test Run No.	**26C-1**	**26C-2**	**26C-3**
Date	3/21/95	3/21/95	3/21/95
Start Time	9:09	11:22	13:00
Stop Time	10:05	12:28	14:04
Stack Moisture & Molecular Wt.			
CO2 (%)	3.00	2.85	2.97
O2 (%)	15.82	15.88	15.88
Beginning Meter Reading (ft3)	155.938	179.704	208.019
Ending Meter Reading (ft3)	179.224	207.838	235.798
Beginning Impinger Wt. (g)	2610.3	2645.0	2685.5
Ending Impinger Wt. (g)	2645.0	2685.5	2722.3
Dry Gas Meter Factor (Kd)	0.9943	0.9943	0.9943
Dry Gas Meter Temperature (°F, begin)	68	77	82
Dry Gas Meter Temperature (°F, end)	79	84	82
Atmospheric Pressure ("Hg, abs.)	29.89	29.87	29.84
Stack Gas Moisture (% volume)	6.67	6.54	6.08
Dry Gas Fraction	0.9333	0.9346	0.9392
Stack Gas Molecular Wt. (lbs/lb-mole)	28.37	28.37	28.44
Stoichiometric Moisture			
Combustion Moisture at 0% excess O2	18.52	18.52	18.52
Stoichiometric Moisture (% volume)	6.30	6.44	6.44
Velocity Pitot Tube Data			
Pitot Tube Factor	0.84	0.84	0.84
ΔP #1	5.3	8.4	7.0
ΔP #2	6.4	8.5	6.8
ΔP #3	5.7	6.8	6.0
ΔP #4	5.7	7.3	5.8
ΔP #5	7.3	5.5	5.5
ΔP #6	7.4	5.3	5.3
ΔP #7	7.1	5.3	5.0
ΔP #8	5.7	4.0	4.1
ΔP #9	7.9	6.0	5.9
ΔP #10	7.3	5.9	5.9
ΔP #11	7.5	5.5	5.6
ΔP #12	6.4	5.5	5.3
ΔP #13	5.8	6.8	7.3
ΔP #14	6.2	7.2	6.9
ΔP #15	5.1	6.8	6.9
ΔP #16	5.0	5.9	5.7
Sum of Square Root of ΔP's	40.255	39.969	38.889
Number of Traverse Points	16	16	16
Average Square Root of ΔP's	2.5159	2.4981	2.4306
Average Temperature (°F)	943	944	944
Static Pressure (in. H2O)	-4	-4	-3.5
Stack Diameter (in.)	35.75	35.75	35.75
Stack Area (ft2)	6.971	6.971	6.971
Stack Velocity (ft/min)	14011	13923	13528
Stack Flow, wet (ACFM)	97667	97052	94302
Stack Flow, dry (SCFH)	**2.04E+06**	**2.02E+06**	**1.98E+06**

MOISTURE AND VELOCITY FIELD DATA SHEETS

Date: 3-21-95
Plant/Operator: Compressor Station No.26
Source: Unit 2601, Taurus 60S
Technicians: CDC, LJB, LAB
Atm. Pres. 2989 in.Hg(Pb)
Test Run #26C-1

Dry Gas Meter ID: Tr.10 Equimeter
Dry Gas Meter Factor: 0.9943 (Kd)
Pitot Tube #/Type: #210/3/8" S.S. S-Type
Pitot Tube Factor: 0.84 (Kp)
Static Press. - 4." in.H2O(Pg)
Average Stack Temp. 943 °F(Ts)

Impinger #	Contents	Initial Weight	Final Weight
1	Di H₂O	716.9	742.8
2	Di H₂O	670.3 g	671.5
3	Empty	500.5 g	501.0
4	Si Gel	722.6 g	729.7
5			
6			
Totals		2610.3	2645.0

Moisture Train

Sample Box #	T-10	
Leak Check		
Pre-test Leak check 0@15"	0." ft.3 or L/min at 15" in. Hg Vacuum	
Post-test Leak check	0.001 [✓ ft.3] or L/min at 18.5' in. Hg Vacuum	
	Initial	Final
Time:	9:09	10:05
Meter Reading (ft3 or L)	155.9375	179.224
Meter Temp. (°F)	68	79
O2 %	15.82%	
CO2 %	3.00%	

Last Imp Temp = 59.2°F

draw@14"Hg

Pitot Tube Traverse/Stack Temp.

Sample Port horizontal Sample Port vertical

Traverse Pt.	ΔP (" H2O)	°F	ΔP (" H2O)	°F
1 ± .2	5.3		7.9 ± .3	
2 ± .2	6.4		7.3 + .3	
3 ± .2	5.7		7.5 ± .6	
4 ± .2	5.7		6.4 ± .3	
5 .2	7.3		5.8 ± .2	
6 ± .4	7.4		6.2 ± .2	
7 ± .4	7.1		5.1 ± .2	
8 .3	5.7		5.0 ± .2	
9				
10				
11				
12				

MOISTURE AND VELOCITY FIELD DATA SHEETS

Date: March 21, 1995
Plant/Operator: Compressor Station No. 26
Source: Unit 2601, Taurus 60S
Technicians: CDC, LJB, LAB
Atm. Pres. 29.87 in.Hg(Pb)
Test Run # 26C-2

Dry Gas Meter ID: Tr. 10 Equimeter
Dry Gas Meter Factor: 0.9943 (Kd)
Pitot Tube #/Type: #210, 3/8" S.S., S-Type
Pitot Tube Factor: 0.84 (Kp)
Static Press. - A.3 in.H2O(Pg)
Average Stack Temp. 944 °F(Ts)

Impinger #	Contents	Initial Weight	Final Weight
1	Di H_2O	742.8g	737.1
2	Di H_2O	671.5g	501.5
3	Empty	501.0g	674.5
4	Si Gel	729.7g	772.4
5			
6			
Totals		2645.0	2685.5

Moisture Train

Test @ 14.5" Hg"

Sample Box #	T-10	
Leak Check .		
Pre-test Leak check	0.000 [✓ ft.3] ~~or L/min~~ at 19.0 in. Hg Vacuum Operating @ 14.5	
Post-test Leak check	0 [✓ ft.3] ~~or L/min~~ at 14.0 in. Hg Vacuum	
	Initial	Final
Time:	11:18	12 25
Meter Reading (ft3 or L)	179.704	207.8375
Meter Temp. (°F)	77	84
O2 %	15.88%	
CO2 %	2.85%	

ext temp 57.8°F

Pitot Tube Traverse/Stack Temp.

Sample Port horizontal Sample Port vertical

Traverse Pt.	ΔP (" H2O)	°F	ΔP (" H2O)	°F
1 ±.2	8.4			
2 ±.3	8.5		6.0 ±.1	
3 ±.2	6.9		5.9 ±.1	
4 ±.2	7.3		5.5 ±.15	
5 ±.2	5.5		5.5 ±.15	
6 ±.2	5.3		6.8 ±.2	
7 ±.2	5.3		7.2 ±.4	
8 ±.1	4.0		6.8 ±.4	
9				
10				
11				
12				

MOISTURE AND VELOCITY FIELD DATA SHEETS

Date: 3-21-95
Plant/Operator: Compressor Station No. 26
Source: Unit 2601, Solar Taurus 60S
Technicians: CDC, LJB, LAB
Atm. Pres. 29.84 in.Hg(Pb)
Test Run # 26C-3

Dry Gas Meter ID: Tr. 10 Equimeter
Dry Gas Meter Factor: 0.9943 (Kd)
Pitot Tube #/Type: #2101 3/8" S.S. S-Type
Pitot Tube Factor: 0.84 (Kp)
Static Press. -3.5 in.H2O(Pg)
Average Stack Temp. 944 °F(Ts)

Impinger #	Contents	Initial Weight	Final Weight
1	Di H_2O	772.4	798.0
2	Di H_2O	674.5	677.7
3	Empty	501.5	501.5
4	Si Gel	737.1	745.1
5			
6			
Totals		2685.5	2722.3

Moisture Train

14.5" Hg

Sample Box #	T-10	
Leak Check		
Pre-test Leak check	0.002 ft.3 or L/min at 19.1 in. Hg Vacuum	
Post-test Leak check	0.001 ft.3 or L/min at 19.0 in. Hg Vacuum	
	Initial	Final
Time:	12:58	14:06
Meter Reading (ft3 or L)	208.019	235.798
Meter Temp. (°F)	82°	82°
O2 %	15.88%	
CO2 %	2.97%	

Last Impinger Temp 54.3°F

Pitot Tube Traverse/Stack Temp.

Sample Port horizontal Sample Port vertical

Traverse Pt.	ΔP (" H2O)	°F	ΔP (" H2O)	°F
1	5.9 ±.02		7.0 ±0.4	
2	5.9 ±0.2		6.8 ±0.3	
3	5.6 ±0.15		6.0 ±0.3	
4	5.3 ±0.2		5.8 ±0.3	
5	7.3 ±0.4		5.5 ±0.2	
6	6.9 ±0.4		5.3 ±0.1	
7	6.9 ±0.4		5.0 ±0.1	
8	5.7 ±0.3		4.1 ±0.05	
9				
10				
11				
12				

APPENDIX B:
Example Calculations

EXAMPLE CALCULATIONS

Calculate NO_x Emission Standard (per Subpart GG)

refers to Test Runs 26C-1 through 26C-3:

For turbines wiuth a max. heat input from 10-100 MMBtu/hr which includes Unit No 2601:

$$\text{ppmv } NO_X \text{ Standard} = \left\{ 150 \times \left(\frac{10180 \left(\frac{\text{Btu}}{\text{bhp-hr}}\right)}{Y} \right) + F \right\}$$

where:

Y = Measured or manufacturer's rated efficiency in terms of lower heating value (LHV) of fuel in $\left(\frac{\text{Btu}}{\text{bhp-hr}}\right)$ at actual peak load. (10,180 Btu/bhp-hr = 14.4 Kilojoules/Watt-hr = 13,658 Btu/Kw-hr). "Y" can not be greater than these values.

H_{FDEP} = FDEP permitted heat input at HHV = 71.52 (MMBtu/hr)

HP_{FDEP} = FDEP permitted brake-horsepower = 6500 bhp

LHV = lower heating value w/ 1040 HHV = 936 Btu/SCF

F = Adjustment to NO_X concentration standard (ppm) according to fuel bound nitrogen content (excluding gaseous N_2).

This calculation assumes permitted value came from Solar rating

$$Y \text{ (actual value)} = \left(\frac{H_{FDEP}}{HP_{FDEP}}\right) \times \left(\frac{LHV}{HHV}\right)$$

$$= \left(\frac{71.52 \text{ (MMBtu/hr)}}{6500 \text{ bhp}}\right) \times \left(\frac{936 \text{ Btu/SCF}}{1040 \text{ Btu/SCF}}\right)$$

$$= 9902.8 \left(\frac{\text{Btu}}{\text{bhp-hr}}\right)$$

$$\text{ppmv } NO_X \text{ Standard} = \left\{ 150 \times \left(\frac{10180 \left(\frac{\text{Btu}}{\text{bhp-hr}}\right)}{9902.8 \left(\frac{\text{Btu}}{\text{bhp-hr}}\right)} \right) + 0.0 \right\}$$

ppmv NO_X Standard = 154.2 ppmv NOx @ ISO Day

Moisture Content (via Humidity and Stoichoimetric approx.)

Refers to Test Run #26C-1

H_{amb} = ambient humidity (lbs H_2O/ lb air) = 0.0112 lbs/lb air
C_{O_2} = concentration of O_2 = 15.82% (from analyzer)
F_{stoi} = stoichiometric moisture @ 0% O_2 = 18.52% vol.
$F_{hum.}$ = humidity moisture = H_{amb} x 1.61 x 100
$F_{com.}$ = combustion moisture (% volume)

$\mathbf{F_w}$ = moisture fraction by % volume

$$F_w = F_{com.} + F_{hum.}$$

$$F_w = F_{stoi} \times \left(\frac{20.9 - \%O_2}{20.9}\right) + (H_{amb} \times 1.61 \times 100)$$

$$F_w = 18.52 \times \left(\frac{20.9 - 15.82}{20.9}\right) + (0.0112 \times 1.61 \times 100)$$

F_w = 6.30 % moisture

Moisture Content via EPA Method 4

refers to Test Run#26C-1

MWC = net impinger gain = 2645.0 - 2610.3 = 34.7 g
0.9943 = dry gas meter factor
V_{cor} = corrected net volume sampled (ft^3) = 23.154 ft^3
P_{atm} = atmospheric pressure = 29.89 "Hg
T_{met} = average meter temperature = 73.5 °F

F_w = moisture content (%)

$$F_w = \frac{MWC \times 1.335}{(MWC \times 1.335) + \left(\frac{(V_{cor} \times P_{atm})}{(T_{met} + 460)} \times (499.4)\right)} \times 100$$

$$F_w = \frac{34.7 \times 1.335}{(34.7 \times 1.335) + \left(\frac{(23.154 \times 29.89)}{(73.5 + 460)} \times (499.4)\right)} \times 100$$

F_w = 6.67 % moisture

Stack Gas Molecular Weight

Refers to Test Run #26C-1

MW_{H_2O} = molecular wt of H_2O = 18 lb/lb-mole
MW_{CO_2} = molecular wt of CO_2 = 44 lb/lb-mole
MW_{O_2} = molecular wt of O_2 = 32 lb/lb-mole
MW_{N_2} = molecular wt of N_2 = 28 lb/lb-mole
C_{CO_2} = concentration of CO_2 = 0.0300(from analyzer)
C_{O_2} = concentration of O_2 = 0.1582(from analyzer)
C_{N_2} = concentration of N_2 = $1-(C_{CO_2} + C_{O_2}) = 0.8118$
F_d = dry gas fraction = 1 - Fw = 0.9333

MW = molecular weight of stack gas (lb/lb-mole)
= wt of H_2O + wt. of CO_2 + wt. of O_2 + wt. of N_2

$$= (MW_{H_2O} \times F_w) + (F_d \times ((MW_{CO_2} \times C_{CO_2}) + (MW_{O_2} \times C_{O_2}) + (MW_{N_2} \times C_{N_2})))$$

$$= (18 \times 0.0667) + (0.9333 \times ((44 \times 0.0300) + (32 \times 0.1582) + (28 \times 0.8118)))$$

MW = 28.37 lb/lb-mole

Stack Gas Flow Rate via Pitot Tube

Refers to Test Run #26C-1

K_p = pitot tube factor = 0.84
ΔP = pressure difference in stack as measured (in. H_2O)
$\sqrt{\Delta P}_{av}$ = average of square root of ΔP's = 2.5159
T_s = stack temperature = 943°F + 460 °R = 1403 °R
P_b = atmospheric pressure (in Hg) = 29.89 "Hg
P_g = stack static pressure (in. H_2O) = -4.0 "H_2O
Ps = absolute stack pressure
= P_b + (Pg x .0735 in.Hg / in.H_2O) = 29.596 "Hg

V = stack velocity (ft/min)

$$= 5128.8 \times Kp \times (\sqrt{\Delta P})avg \times \sqrt{\frac{Ts}{(Ps \times MW)}}$$

$$= 5128.8 \times 0.84 \times 2.5159 \times \sqrt{\frac{1403}{(29.596 \times 28.37\ )}}$$

= 14,011 ft/min

Q_a = stack flow rate (ft^3/min)
= V x A , where A= area of stack = 6.971 ft^2

= 14,011 x 6.971 = 97,671 ft^3/min

Qd = stack flow rate on dry basis at standard conditions (SCFH)
= Q_a x 1059 x (Ps / Ts) x Fd

= 97,671 x 1059 x (29.596/ 1403) x 0.9333

Qd = 2.04 x 10^6 SCFH

Stack Gas Flow Rates via F-factors (Qd)

refers to Test Run #26C-1

Convert mass fuel flow to volumetric fuel flow:
Hg = heating value of nat. gas = 1040.8 Btu/SCF (gross)
from fuel analysis
F = fuel flow = 50,970 SCFH from fuel meter
H = heat input (MMBTU/hr)
= Hg x F/(1 x 10^6) = 53.05 MMBTU/hr

Calculate flow rate using **O_2 F-factor**:
C_{O2} = O_2 concentration in exhaust = 15.82 % by vol, dry
O_2 F-factor = 8688 DSCF of Exhaust/MMBtu
of fuel burned @ 0% excess air

Qd1 = Stack Exhaust Gas Flow Rate via O_2 F-factor

$$Qd_1 = \frac{H \times O_2 \text{ F-factor} \times 20.9}{20.9 - C_{O2}}$$

$$Qd_1 = \frac{53.05 \times 8688 \times 20.9}{20.9 - 15.82}$$

Qd1 = 1.90 x 10^6 DSCFH

Calculate flow rate using **CO2 F-factor**
Using same data as above, except:
C_{CO2} = Concentration of CO_2 in exhuast = 3.00 % vol,dry
CO_2 F-factor = 1030 DSCF of CO2/ MMBtu
of fuel burned @ 0% excess air

Qd2 = Stack Exhaust Gas Flow Rate via CO_2 F-factor

$$Qd_2 = \frac{H \times CO_2 \text{ F-factor} \times 100}{C_{CO2}}$$

$$Qd_2 = \frac{53.05 \times 1030 \times 100}{3.00}$$

Qd2 = 1.82 x 10^6 DSCFH

F_O Calculation to Verify O2/CO2 Measurements

refers to Test Run #26C-1

C_{CO_2} = concentration of carbon dioxide = 3.00 % (from analyzer)
C_{O_2} = concentration of oxygen = 15.82% (from analyzer)

$$F_O = \frac{20.9 - \%\,O2}{\%\,CO2}$$

$$F_O = \frac{20.9 - 15.82}{3.00}$$

F_O = 1.69 *(acceptable F_O values for natural gas = 1.600 to 1.836)*

NOx Correction to 15% O2

refers to Test Run 26C-1

NOx = observed NOx concentration = 24.1 ppmv
C_{O_2} = concentration of oxygen = 15.82 % (from analyzer)

$$\text{NOx @15\% O2} = \frac{(\text{NOx x } (20.9 - 15.0\ \%\text{O2}))}{20.9 - C_{O2}}$$

$$= \frac{24.1 \text{ x } 5.9}{20.9 - 15.82}$$

NOx @15% O2 = 28.0 ppmv

FDEP Permit ISO-day Correction for NOx

refers to Test Run 26C-1

H_{obs} = observed humidity of ambient air = 0.0112 (lbs / lb air)
C_{NO_x} = concentration of NOx = 28.0 ppmv @15% O2
P_{ref} = reference combustor inlet pressure = 101.3 kpa
P_{obs} = observed combustor inlet pressure
= 29.89 "Hg x 3.3864 kpa/ "Hg = 101.22 kpa
T_{amb} = ambient temperature of inlet air
= (74 °F - 32 °F) x (5/9) + 273 °C = 296.33 °K

NO_X(FDEP) = NO_X concentration @ISO conditions

$$= NO_X(@15\%O2) \times \sqrt{\frac{Pref}{Pobs}} \times \left(\frac{288°K}{Tamb}\right)^{1.53} \times 2.718^{19(H - 0.00633)}$$

$$= 28.0 \times \sqrt{\frac{101.3}{101.22}} \times \left(\frac{288}{296.33}\right)^{1.53} \times 2.718^{19(0.0112 - 0.00633)}$$

NO_X(FDEP) = 29.4 ppmv @ ISO Day Conditions

S Concentration (using ASTM D3246 Analysis)

refers to Test Run #26C-1

S	=	concentration of S (grains/100SCF$_R$) found in the Brooker fuel analysis	= 0.0629 gr/CSCF
MW_{CR}	=	molecular weight of residue gas	= 17.16 lb/lb-mol
1 lb	=	7000 grains of sulfur for ideal (residue) gas, 385.15 SCF = 1.0 lb/mole per EPA	

C_S = concentration of sulfur in fuel gas in weight percent

$$= \left(\frac{\text{gr. Sulfur}}{100\ SCF_R}\right) \times \left(\frac{1\text{ lb S}}{7000\text{ gr S}}\right) \times \left(\frac{385.15\ SCF_R/\text{lb-mol}}{MW_{CR}}\right) \times 100$$

$$= \left(\frac{0.0629\text{ gr S}}{100\ SCF_R}\right) \times \left(\frac{1\text{ lb S}}{7000\text{ gr S}}\right) \times \left(\frac{385.15\ SCF_R/\text{lb-mol}_R}{17.16\text{ lb/lb-mol}_R}\right) \times 100$$

C_S = **2.02×10^{-4} wt%**

SO_2 Mass Emission Rate (lbs/hr)

Refers to Test Run #26C-1

F = engine fuel flow from fuel meter = 50970 SCFH

for ideal (residue) gas, 385.15 SCF = 1.0 lb/mole per EPA

MW_{CR} = molecular weight of residue gas = 17.16 lb/lb-mol

Flow = engine fuel flow from fuel meter

= 50970 SCFH x (17.16/385.15) = 2271 lb/hr fuel

MW_{SO_2} = molecular weight of sulfur dioxide = 64.06 lb/lb-mol

MW_S = molecular weight of sulfur = 32.06 lb/lb-mol

E_{SO_2} = mass emission rate of SO_2 in (lbs/hr)

$$= \left(\frac{CS}{100}\right) \text{ x Flow x } \left(\frac{MW_{SO_2}}{MW_S}\right)$$

$$= \left(\frac{2.02 \text{ x } 10^{-4}}{100}\right)\left(\frac{\text{lbs S}}{\text{lb fuel}}\right) \text{x 2271 lbs/hr fuel x } \left(\frac{64.06 \text{ lb/lb-mol}}{32.06\text{lb/lb-mol}}\right)$$

E_{SO_2} = **0.0092 lbs/hr S expressed as SO_2**

NOx Mass Emission Rate (lbs/hr)

Refers to Test Run #26C-1

NOx = uncorrected concentration of NOx = 24.1 ppmv

MW = 46.01 lb/lb-mole for nitrogen dioxide

for ideal gas, 385.15 SCF = 1.0 lb/mole

Q_d = $2.04 \text{ x } 10^6$ SCFH (from pitot tube volumetric flow)

E_{NO_x} = mass emission rate of NOx in (lb/hr)

$= NO_x\ 10^{-6} \text{ x } Q_d \text{ x } (MW / 385.15)$

$= 24.1 \text{ x } 10^{-6} \text{ x } 2.04 \text{ x } 10^6 \text{ x } (46.01 / 385.15)$

E_{NOx} = **5.87 lbs/hr (differences due to rounding)**

CO Mass Emission Rate (lbs/hr)

Refers to Test Run #26C-1

CO = observed concentration of CO = 6.7 ppmv
MW = 28 lb/lb-mole for carbon monoxide
using same formula as for NOx mass emission rate

E_{CO} = mass emission rate of CO in (lb/hr)

$= 6.7 \times 10^{-6} \times 2.04 \times 10^{6} \times (28 / 385.15)$

E_{CO} = **0.99 lbs/hr**

THC Mass Emission Rate (lbs/hr)

Refers to Test Run #26C-1

THC = concentration of HC including methane = 0.95 ppmv as Methane
MW = 16.04 lb/lb-mole for methane
using same formula as for NOx mass emission rate

E_{THC} = mass emission rate of THC in (lb/hr)

$= 0.95 \times 10^{-6} \times 2.04 \times 10^{6} \times (16.04 / 385.15)$

E_{THC} = **0.081 lbs/hr**

NOx Mass Emission Rate (tons/yr)

Refers to Test Run #26C-1

E_{NO_x} = mass emission rate of NOx in (lb/hr) = 5.87 lbs/hr
Permitted hours per year of unit operation = 8760 hrs/yr

NO_x yr. = total mass emission rate of NOx in (tons/yr)

$$= E_{NO_x} \times \frac{8760\text{ hr}}{\text{yr}} \times \frac{1\text{ ton}}{2000\text{ lbs}}$$

$$= 5.87 \times \frac{8760\text{ hr}}{\text{yr}} \times \frac{1\text{ ton}}{2000\text{ lbs}}$$

NO_x yr. = **25.7 tons/yr**

SO_2 Mass Emission Rate (tons/yr)

Refers to Test Run #26C-1

E_{SO_2} = mass emission rate of SO_2 in (lb/hr) = 0.0092 lbs/hr
using same formula as for NOx mass emission rate

SO_2 yr. = total mass emission rate of SO_2 in (tons/yr)

$$= 0.0092 \times \frac{8760\ \text{hr}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}}$$

SO_2 yr. = 0.040 tons/yr

CO Mass Emission Rate (tons/yr)

Refers to Test Run #26C-1

E_{CO} = mass emission rate of CO in (lb/hr) = 0.99 lbs/hr
using same formula as for NOx mass emission rate

CO yr. = total mass emission rate of CO in (tons/yr)

$$= 0.99 \times \frac{8760\ \text{hr}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}}$$

CO yr. = 4.34 tons/yr

THC Mass Emission Rate (tons/yr)

Refers to Test Run #26C-1

E_{THC} = mass emission rate of THC in (lb/hr) = 0.081 lbs/hr
using same formula as for NOx mass emission rate

THC yr. = total mass emission rate of THC in (tons/yr)

$$= 0.081 \times \frac{8760\ \text{hr}}{\text{yr}} \times \frac{1\ \text{ton}}{2000\ \text{lbs}}$$

THC yr. = 0.35 tons/yr

NOx Mass Emission Rate (g/bhp•hr)

Refers to Test Run #26C-1

E_{NO_x} = 5.87 lb/hr

HP = compressor shaft horsepower = 6439 bhp corrected to ISO Day

NO_X em. = total mass emission rate of NO_X in (g/bhp•hr)

$$= \frac{E_{NO_x} \text{ x } 454 \text{ g/lb}}{\text{BHP}}$$

$$= \frac{5.87 \text{ lb/hr x } 454 \text{ g/lb}}{6439}$$

NO_X em. = 0.414 g/bhp•hr (diff. due to rounding)

CO Mass Emission Rate (g/bhp•hr)

Refers to Test Run #26C-1

E_{CO} = 2.00 lb/hr

using the same formula as for the NO_X mass emission rate

CO em. = total mass emission rate of CO in (g/bhp•hr)

$$= \frac{0.99 \text{ lb/hr x } 454 \text{ g/lb}}{6439}$$

CO em. = 0.070 g/bhp•hr

THC Mass Emission Rate (g/bhp•hr)

Refers to Test Run #26C-1

E_{THC} = 0.081 lb/hr

using the same formula as for the NO_X mass emission rate

THC em. = total mass emission rate of THC in (g/bhp•hr)

$$= \frac{0.081 \text{ lb/hr x } 454 \text{ g/lb}}{6439}$$

THC em. = 0.0057 g/bhp•hr

APPENDIX C:
Fuel Analysis And Calculations

```
                              ANALYSIS


DATE: 03/21/95            ANALYSIS TIME:   345        STREAM SEQUENCE: 1
TIME:      06:23          CYCLE TIME:      360        STREAM#:      3
ANALYZER#:          2     MODE:            RUN        CYCLE START TIME: 06:16

COMP NAME COMP CODE          MOLE %        GAL/MCF**        B.T.U.*        REL DEN*

HEXANE +       151            0.119          0.0521            6.14          0.0038
PROPANE        152            0.502          0.1383           12.66          0.0076
I-BUTANE       153            0.149          0.0487            4.85          0.0030
N-BUTANE       154            0.149          0.0470            4.87          0.0030
IPENTANE       155            0.100          0.0364            3.99          0.0025
NPENTANE       156            0.100          0.0362            4.02          0.0025
NITROGEN       157            0.493          0.0541            0.00          0.0048
METHANE        158           95.133         16.1250          963.03          0.5269
CO2            159            1.003          0.1709            0.00          0.0152
ETHANE         160            2.251          0.6022           39.93          0.0234

TOTALS                      100.000         17.3111         1039.50          0.5928

* @ 14.730 PSIA & UNCORRECTED FOR COMPRESSIBILITY

* @ 14.730 & 60 DEG. F

COMPRESSIBILITY FACTOR (1/Z)                                      = 1.0022
DRY    B.T.U. @  14.730 PSIA & 60 DEG. F CORRECTED FOR (1/Z)      = 1041.8
REAL RELATIVE DENSITY                                             = 0.5939
UNNORMALIZED TOTAL                                                =  99.96
ANALOG INPUT CHANNEL  1 =  H 2 S       140                        = 6.2895 E-02
ANALOG INPUT CHANNEL  2 =  WATER       144                        = 2.7465

ACTIVE ALARMS

NONE
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$\frac{BTU}{SCF} \approx$ 1040.8 HHV

Q F 8688

Gas Fuel F Factor & Heating Value Calculation

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

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

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

total	100.00	Average Density	0.04541	100.0000	**Gross Heating Value**		**Gross Heating Value**	
		Specific Gravity	0.59356		**Btu/lb**	**22910**	**Btu/SCF**	**1040.8**

CALCULATION OF F FACTORS

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

CALCULATED VALUES

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

APPENDIX D:
Operational Data

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|*************************************************************************************|
|                                  FLORIDA GAS                  Test Run              |
|*************************************************************************************|
|21-MAR-95  09:18:07     UNIT 1  ANALOG DATA                    26C-I, Unit 2601      |
|*************************************************************************************|
|    NGP                                    |  NGP [%]                |       96.9 96.9
|    NPT                                    |  NPT [%]                |       89.8 |89.6
|    T5 THERMOCOUPLE 1                      |  T5 TC 1 [°F]           |       1425 |
|    T5 THERMOCOUPLE 2                      |  T5 TC 2 [°F]           |       1394 |
|    T5 THERMOCOUPLE 3                      |  T5 TC 3 [°F]           |       1420 |
|    T5 THERMOCOUPLE 4                      |  T5 TC 4 [°F]           |       1383 |
|    T5 THERMOCOUPLE 5                      |  T5 TC 5 [°F]           |       1385 |
|    T5 THERMOCOUPLE 6                      |  T5 TC 6 [°F]           |       1402 |
|    HPC SUCTION PRESS                      |  PT50X0 [PSIG]          |      811.0 |806.5
|    HPC DISCHARGE PRESS                    |  PT50X1 [PSIG]          |     1028.2 | 1027.
|    AIR INLET DP                           |  TPD358 ["H20]          |        2.7 |
|    ENGINE CPSR DISCHARGE PRESS            |  PCD [psig]             |      134.6 |
|    24 VDC BATTERY VOLTAGE                 |  Battery [vdc]          |       25.7 |
|    LUBE OIL HEADER PRESS                  |  Lube Oil [psig]        |       60.3 |
|    SUCTION  FLOW                          |  FT50X0  ["H2O]         |       45.1 |
|    COMP DP                                |  TPD563_1 [PSID]        |      224.7 |
|    ASV POSS.                              |  ZT50X4 [%]             |       94.3 |
|    FUEL GAS PRESS                         |  TP586 [PSIG]           |      206.4 |
|    FUEL FLOW                              |  TPD586 ["H20]          |       31.2 |
|    COMP JACKING PUMP PRESS                |  TP36QJT [PSIG]         |        2.2 |
|    COMP BUFFER AIR FLOW                   |  TP80CBA [SCFM]         |        5.8 |
|    GAS FUEL ACTUATOR COMMAND              |  GF Act Cmmd [mA]       |       31.5 |
|    SURGE VALVE COMMAND                    |  L567 [%]               |       99.9 |
|    GUIDE VANE COMMAND                     |  GV Cmmd [mA]           |       50.0 |
|    LUBE OIL HEADER TEMP                   |  Lube Oil [°F]          |      143.9 |
|    T1 AIR INLET TEMP                      |  T1 [°F]                |       71.5 |72.7
|    COLD JUNCTION + COMPENSATION           |  CJ + Comp [°F]         |      279.6 |
|    LUBE OIL TANK TEMP                     |  Lube Tank [°F]         |      164.9 |
|    GP THRUST BRG FWD TEMP                 |  GP TB Fwd [°F]         |      182.7 |
|    PT THRUST BRG AFT TEMP                 |  PT TB Aft [°F]         |      172.9 |
|    ENG #1 BRG DRN TEMP                    |  #1 Bg D [°F]           |      159.5 |
|    ENG #2 & #3 BRG DRN TEMP               |  #2,3 Bg D [°F]         |      168.8 |
|    ENG #4 & #5 BRG DRN TEMP               |  #4,5 Bg D [°F]         |      164.3 |
|    COMP DE JRNL BRG  TEMP                 |  CDEJB TMP [°F]         |      196.8 |
|    CPSR INB TBT                           |  CIBTBT    [°F]         |      174.0 |
|    CPSR OBD TBT                           |  COBTBT    [°F]         |      164.9 |
|    COMP NDE JRNL BRG  TEMP                |  CDEJB TMP [°F]         |      179.2 |
|    FUEL GAS TEMP                          |  RT586    [°F]          |       38.6 |
|    SUCTION TEMP                           |  TE50X0    [°F]         |       64.8 |63.9
|    DISCHARGE TEMP                         |  TE50X1    [°F]         |      100.6 |99.6
|    ENGINE T2 TEMP 1                       |  ENG T2-1 [°F]          |      654.3 |
|    ENGINE T2 TEMP 2                       |  ENG T2-2 [°F]          |      655.6 |
|    ENGINE T2 TEMP 3                       |  ENG T2-3 [°F]          |      652.8 |
|    ENGINE VIBRATION BRG #1 Y AXIS         |  Brg #1 Y [mils]        |      0.625 |
|    ENGINE VIBRATION BRG #1 X AXIS         |  Brg #1 X [mils]        |      0.679 |
|    ENGINE VIBRATION BRG #2 Y AXIS         |  Brg #2 Y [mils]        |      0.708 |
|    ENGINE VIBRATION BRG #2 X AXIS         |  Brg #2 X [mils]        |      0.632 |
|    ENGINE VIBRATION BRG #3 Y AXIS         |  Brg #3 Y [mils]        |      0.720 |
|    ENGINE VIBRATION BRG #3 X AXIS         |  Brg #3 X [mils]        |      0.835 |
|    ENGINE VIBRATION BRG #4 Y AXIS         |  Brg #4 Y [mils]        |      0.463 |
|    ENGINE VIBRATION BRG #4 X AXIS         |  Brg #4 X [mils]        |      0.484 |
|    ENGINE VIBRATION BRG #5 Y AXIS         |  Brg #5 Y [mils]        |      0.618 |
|*************************************************************************************|
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FLORIDA GAS

21-MAR-95 09:18:08 UNIT 1 ANALOG DATA

ENGINE VIBRATION BRG #5 X AXIS	Brg #5 X [mils]	0.468	
HPC COMP RADIAL FWD Y AXIS	39CDY [mils]	0.244	
HPC COMP RADIAL FWD X AXIS	39CDX [mils]	0.676	
HPC COMP RADIAL AFT Y AXIS	39CNY [mils]	0.600	
HPC COMP RADIAL AFT X AXIS	39CNX [mils]	0.266	
HPC IBD THRUST	39CAD1 [mils]	-15.3	
STATION DEWPOINT	STN DEW PT [LBS]	6.05	
DISCHARGE FLOW	DIS FLOW [MSCFD]	448	
~~FUEL FLOW~~	~~FUEL FLW [MSCFH]~~	~~49.97~~	
CONTROL LINE SETPOINT	ConLinSP [psid]	275.2	
CPSR SURGE MARGIN	CpsrSrgMarg [%]	21.1	
SURGE LINE BIAS	SrgLnBias [psid]	-14.2	
DEADBAND LINE SLOPE	KDB	2.470	
CONTROL LINE SLOPE	KCL	2.570	
SURGE LINE SLOPE	KSL	3.110	
ENGINE POWER NOMINAL	E Pwr Nom [hp]	5379	
ENGINE FUEL FLOW NOMINAL MMbtuH	Wf N [MMbtuH]	47.1	
ENGINE PCD NOMINAL	PCD Nom [psig]	131.6	
ENGINE T5 NOMINAL	T5 Nom [°F]	1371	
NPT OPT	NPT Opt [%]	86.1	
ENGINE POWER ACTUAL	E Pwr Act [hp]	5532	
ENGINE PCD ACTUAL	PCD Act [psig]	~~135.4~~	134.7
ENGINE CONTAMINATION FACTOR	ECF [%]	2.8	
ENGINE FUEL FLOW ACTUAL MMbtuH	Wf A [MMbtuH]	52.4	
ENGINE POWER DELTA	E Pwr Delta [hp]	153	
ENGINE T5 DELTA	T5 Delta [°F]	31	
ENGINE PCD DELTA	PCD Delta [psig]	3.8	
ENGINE FUEL FLOW DELTA MMbtuH	Wf D [MMbtuH]	5.3	
ENGINE FUEL FLOW SCFH	Qf [mscfh]	51.04	50.97
COMPRESSOR SPEED ACTUAL	Cp Spd Act [rpm]	12574	
COMPRESSOR FLOW ACFM	Cp Flow [acfm]	4900	
COMPRESSOR ISENTROPIC HEAD	Cp Head [ft]	10133	
COMPRESSOR EFFICIENCY ACTUAL	Cp ETA Act	0.798	
COMPRESSOR SHAFT POWER	Cp Sft Pwr [hp]	~~5427~~	6485..
COMPRESSOR EFFICIENCY NOMINAL	Cp ETA Nom	0.780	Ave=
COMPRESSOR SPEED NOMINAL	Cp Spd Nom [rpm]	13106	6439
COMPRESSOR EFFICIENCY DELTA	Delta ETA	0.018	
COMPRESSOR SPEED DELTA	Delta Spd [rpm]	-532	
COMPRESSOR FLOW MMSCFD	Cp Flow [mmscfd]	447.6	446.7
MIN FUEL LEVEL	Min Fuel [mA]	-2.2	
NGP SETPOINT	NGP SP [%]	98.1	
NUMBER OF ACTIVE T5 TC's	No Act T5 TC's	6	
T5 SETPOINT	T5 SP [°F]	1400	
T5 THERMOCOUPLE AVERAGE	T5 Avg [°F]	1402	1400

Run26C-1

Unit 2601

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*************************************************************************
                                FLORIDA GAS
*************************************************************************
21-MAR-95  09:34:15     UNIT 1  ANALOG DATA
*************************************************************************
    NGP                                    | NGP [%]             |     97.0 |
    NPT                                    | NPT [%]             |     89.6 |
    T5 THERMOCOUPLE 1                      | T5 TC 1 [°F]        |     1422 |
    T5 THERMOCOUPLE 2                      | T5 TC 2 [°F]        |     1396 |
    T5 THERMOCOUPLE 3                      | T5 TC 3 [°F]        |     1418 |
    T5 THERMOCOUPLE 4                      | T5 TC 4 [°F]        |     1381 |
    T5 THERMOCOUPLE 5                      | T5 TC 5 [°F]        |     1377 |
    T5 THERMOCOUPLE 6                      | T5 TC 6 [°F]        |     1397 |
    HPC SUCTION PRESS                      | PT50X0 [PSIG]       |    809.2 |
    HPC DISCHARGE PRESS                    | PT50X1 [PSIG]       |   1025.3 |
    AIR INLET DP                           | TPD358 ["H20]       |      2.6 |
    ENGINE CPSR DISCHARGE PRESS            | PCD [psig]          |    134.6 |
    24 VDC BATTERY VOLTAGE                 | Battery [vdc]       |     25.6 |
    LUBE OIL HEADER PRESS                  | Lube Oil [psig]     |     60.4 |
    SUCTION  FLOW                          | FT50X0  ["H20]      |     47.4 |
    COMP DP                                | TPD563_1 [PSID]     |    221.2 |
    ASV POSS.                              | ZT50X4 [%]          |     94.3 |
    FUEL GAS PRESS                         | TP586 [PSIG]        |    206.4 |
    FUEL FLOW                              | TPD586 ["H20]       |     31.9 |
    COMP JACKING PUMP PRESS                | TP36QJT [PSIG]      |      2.2 |
    COMP BUFFER AIR FLOW                   | TP80CBA [SCFM]      |      5.8 |
    GAS FUEL ACTUATOR COMMAND              | GF Act Cmmd [mA]    |     32.3 |
    SURGE VALVE COMMAND                    | L567 [%]            |     99.9 |
    GUIDE VANE COMMAND                     | GV Cmmd [mA]        |     50.0 |
    LUBE OIL HEADER TEMP                   | Lube Oil [°F]       |    144.0 |
    T1 AIR INLET TEMP                      | T1 [°F]             |     71.1 |
    COLD JUNCTION + COMPENSATION           | CJ + Comp [°F]      |    280.8 |
    LUBE OIL TANK TEMP                     | Lube Tank [°F]      |    164.9 |
    GP THRUST BRG FWD TEMP                 | GP TB Fwd [°F]      |    182.8 |
    PT THRUST BRG AFT TEMP                 | PT TB Aft [°F]      |    173.1 |
    ENG #1 BRG DRN TEMP                    | #1 Bg D [°F]        |    159.8 |
    ENG #2 & #3 BRG DRN TEMP               | #2,3 Bg D [°F]      |    169.0 |
    ENG #4 & #5 BRG DRN TEMP               | #4,5 Bg D [°F]      |    164.3 |
    COMP DE JRNL BRG  TEMP                 | CDEJB TMP [°F]      |    196.5 |
    CPSR INB TBT                           | CIBTBT    [°F]      |    174.1 |
    CPSR OBD TBT                           | COBTBT    [°F]      |    164.9 |
    COMP NDE JRNL BRG  TEMP                | CDEJB TMP [°F]      |    179.1 |
    FUEL GAS TEMP                          | RT586   [°F]        |     39.6 |
    SUCTION TEMP                           | TE50X0   [°F]       |     64.8 |
    DISCHARGE TEMP                         | TE50X1   [°F]       |     99.9 |
    ENGINE T2 TEMP 1                       | ENG T2-1 [°F]       |    654.5 |
    ENGINE T2 TEMP 2                       | ENG T2-2 [°F]       |    654.9 |
    ENGINE T2 TEMP 3                       | ENG T2-3 [°F]       |    652.5 |
    ENGINE VIBRATION BRG #1 Y AXIS         | Brg #1 Y [mils]     |    0.628 |
    ENGINE VIBRATION BRG #1 X AXIS         | Brg #1 X [mils]     |    0.657 |
    ENGINE VIBRATION BRG #2 Y AXIS         | Brg #2 Y [mils]     |    0.728 |
    ENGINE VIBRATION BRG #2 X AXIS         | Brg #2 X [mils]     |    0.632 |
    ENGINE VIBRATION BRG #3 Y AXIS         | Brg #3 Y [mils]     |    0.725 |
    ENGINE VIBRATION BRG #3 X AXIS         | Brg #3 X [mils]     |    0.830 |
    ENGINE VIBRATION BRG #4 Y AXIS         | Brg #4 Y [mils]     |    0.480 |
    ENGINE VIBRATION BRG #4 X AXIS         | Brg #4 X [mils]     |    0.468 |
    ENGINE VIBRATION BRG #5 Y AXIS         | Brg #5 Y [mils]     |    0.640 |
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|****************************************************************************|
                                FLORIDA GAS                                  |
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21-MAR-95  09:34:16    UNIT 1  ANALOG DATA                                   |
|****************************************************************************|
  ENGINE VIBRATION BRG #5 X AXIS        | Brg #5 X [mils]       |       0.464 |
  HPC COMP RADIAL FWD Y AXIS            | 39CDY    [mils]       |       0.249 |
  HPC COMP RADIAL FWD X AXIS            | 39CDX    [mils]       |       0.683 |
  HPC COMP RADIAL AFT Y AXIS            | 39CNY    [mils]       |       0.592 |
  HPC COMP RADIAL AFT X AXIS            | 39CNX    [mils]       |       0.264 |
  HPC IBD THRUST                        | 39CAD1   [mils]       |       -15.5 |
  STATION DEWPOINT                      | STN DEW PT [LBS]      |        5.96 |
  DISCHARGE FLOW                        | DIS FLOW [MSCFD]      |         459 |
  FUEL FLOW                             | FUEL FLW [MSCFH]      |       50.49 |
  CONTROL LINE SETPOINT                 | ConLinSP [psid]       |       290.5 |
  CPSR SURGE MARGIN                     | CpsrSrgMarg [%]       |        25.2 |
  SURGE LINE BIAS                       | SrgLnBias [psid]      |       -14.2 |
  DEADBAND LINE SLOPE                   | KDB                   |       2.470 |
  CONTROL LINE SLOPE                    | KCL                   |       2.570 |
  SURGE LINE SLOPE                      | KSL                   |       3.110 |
  ENGINE POWER NOMINAL                  | E Pwr Nom [hp]        |        5407 |
  ENGINE FUEL FLOW NOMINAL MMbtuH       | Wf N [MMbtuH]         |        47.3 |
  ENGINE PCD NOMINAL                    | PCD Nom [psig]        |       132.0 |
  ENGINE T5 NOMINAL                     | T5 Nom [°F]           |        1371 |
  NPT OPT                               | NPT Opt [%]           |        86.2 |
  ENGINE POWER ACTUAL                   | E Pwr Act [hp]        |        5555 |
  ENGINE PCD ACTUAL                     | PCD Act [psig]        |       135.4 |
  ENGINE CONTAMINATION FACTOR           | ECF [%]               |         2.5 |
  ENGINE FUEL FLOW ACTUAL MMbtuH        | Wf A [MMbtuH]         |        52.9 |
  ENGINE POWER DELTA                    | E Pwr Delta [hp]      |         148 |
  ENGINE T5 DELTA                       | T5 Delta [°F]         |          27 |
  ENGINE PCD DELTA                      | PCD Delta [psig]      |         3.4 |
  ENGINE FUEL FLOW DELTA MMbtuH         | Wf D [MMbtuH]         |         5.6 |
  ENGINE FUEL FLOW SCFH                 | Qf [mscfh]            |       51.57 |
  COMPRESSOR SPEED ACTUAL               | Cp Spd Act [rpm]      |       12541 |
  COMPRESSOR FLOW ACFM                  | Cp Flow [acfm]        |        5034 |
  COMPRESSOR ISENTROPIC HEAD            | Cp Head [ft]          |       10106 |
  COMPRESSOR EFFICIENCY ACTUAL          | Cp ETA Act            |       0.812 |
  COMPRESSOR SHAFT POWER                | Cp Sft Pwr [hp]       |    ~~5453~~ 6517
  COMPRESSOR EFFICIENCY NOMINAL         | Cp ETA Nom            |       0.780 |
  COMPRESSOR SPEED NOMINAL              | Cp Spd Nom [rpm]      |       13135 |
  COMPRESSOR EFFICIENCY DELTA           | Delta ETA             |       0.032 |
  COMPRESSOR SPEED DELTA                | Delta Spd [rpm]       |        -594 |
  COMPRESSOR FLOW MMSCFD                | Cp Flow [mmscfd]      |       458.8 |
  MIN FUEL LEVEL                        | Min Fuel [mA]         |        -2.2 |
  NGP SETPOINT                          | NGP SP [%]            |        98.1 |
  NUMBER OF ACTIVE T5 TC's              | No Act T5 TC's        |           6 |
  T5 SETPOINT                           | T5 SP [°F]            |        1400 |
  T5 THERMOCOUPLE AVERAGE               | T5 Avg [°F]           |        1398 |
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|****************************************************************************|
|                              FLORIDA GAS                         Run26C-1  |
|****************************************************************************|
|21-MAR-95  09:51:26     UNIT 1   ANALOG DATA                      Unit2601 |
|****************************************************************************|
|    NGP                                  |  NGP [%]            |       96.8 |
|    NPT                                  |  NPT [%]            |       89.4 |
|    T5 THERMOCOUPLE 1                    |  T5 TC 1 [°F]       |       1424 |
|    T5 THERMOCOUPLE 2                    |  T5 TC 2 [°F]       |       1400 |
|    T5 THERMOCOUPLE 3                    |  T5 TC 3 [°F]       |       1421 |
|    T5 THERMOCOUPLE 4                    |  T5 TC 4 [°F]       |       1380 |
|    T5 THERMOCOUPLE 5                    |  T5 TC 5 [°F]       |       1375 |
|    T5 THERMOCOUPLE 6                    |  T5 TC 6 [°F]       |       1401 |
|    HPC SUCTION PRESS                    |  PT50X0 [PSIG]      |      808.4 |
|    HPC DISCHARGE PRESS                  |  PT50X1 [PSIG]      |     1031.9 |
|    AIR INLET DP                         |  TPD358 ["H20]      |        2.7 |
|    ENGINE CPSR DISCHARGE PRESS          |  PCD [psig]         |      133.1 |
|    24 VDC BATTERY VOLTAGE               |  Battery [vdc]      |       25.5 |
|    LUBE OIL HEADER PRESS                |  Lube Oil [psig]    |       59.9 |
|    SUCTION  FLOW                        |  FT50X0  ["H20]     |       43.2 |
|    COMP DP                              |  TPD563_1 [PSID]    |      224.4 |
|    ASV POSS.                            |  ZT50X4 [%]         |       94.3 |
|    FUEL GAS PRESS                       |  TP586 [PSIG]       |      206.5 |
|    FUEL FLOW                            |  TPD586 ["H20]      |       30.8 |
|    COMP JACKING PUMP PRESS              |  TP36QJT [PSIG]     |        2.2 |
|    COMP BUFFER AIR FLOW                 |  TP80CBA [SCFM]     |        5.8 |
|    GAS FUEL ACTUATOR COMMAND            |  GF Act Cmmd [mA]   |       31.9 |
|    SURGE VALVE COMMAND                  |  L567 [%]           |       99.9 |
|    GUIDE VANE COMMAND                   |  GV Cmmd [mA]       |       50.0 |
|    LUBE OIL HEADER TEMP                 |  Lube Oil [°F]      |      144.4 |
|    T1 AIR INLET TEMP                    |  T1 [°F]            |       74.0 |
|    COLD JUNCTION + COMPENSATION         |  CJ + Comp [°F]     |      282.2 |
|    LUBE OIL TANK TEMP                   |  Lube Tank [°F]     |      165.1 |
|    GP THRUST BRG FWD TEMP               |  GP TB Fwd [°F]     |      182.7 |
|    PT THRUST BRG AFT TEMP               |  PT TB Aft [°F]     |      173.0 |
|    ENG #1 BRG DRN TEMP                  |  #1 Bg D [°F]       |      160.1 |
|    ENG #2 & #3 BRG DRN TEMP             |  #2,3 Bg D [°F]     |      169.2 |
|    ENG #4 & #5 BRG DRN TEMP             |  #4,5 Bg D [°F]     |      164.6 |
|    COMP DE JRNL BRG  TEMP               |  CDEJB TMP [°F]     |      197.4 |
|    CPSR INB TBT                         |  CIBTBT     [°F]    |      174.1 |
|    CPSR OBD TBT                         |  COBTBT     [°F]    |      165.0 |
|    COMP NDE JRNL BRG  TEMP              |  CDEJB TMP [°F]     |      179.4 |
|    FUEL GAS TEMP                        |  RT586    [°F]      |       40.5 |
|    SUCTION TEMP                         |  TE50X0    [°F]     |       63.1 |
|    DISCHARGE TEMP                       |  TE50X1    [°F]     |       98.9 |
|    ENGINE T2 TEMP 1                     |  ENG T2-1 [°F]      |      656.0 |
|    ENGINE T2 TEMP 2                     |  ENG T2-2 [°F]      |      657.6 |
|    ENGINE T2 TEMP 3                     |  ENG T2-3 [°F]      |      654.6 |
|    ENGINE VIBRATION BRG #1 Y AXIS       |  Brg #1 Y [mils]    |      0.615 |
|    ENGINE VIBRATION BRG #1 X AXIS       |  Brg #1 X [mils]    |      0.654 |
|    ENGINE VIBRATION BRG #2 Y AXIS       |  Brg #2 Y [mils]    |      0.716 |
|    ENGINE VIBRATION BRG #2 X AXIS       |  Brg #2 X [mils]    |      0.628 |
|    ENGINE VIBRATION BRG #3 Y AXIS       |  Brg #3 Y [mils]    |      0.740 |
|    ENGINE VIBRATION BRG #3 X AXIS       |  Brg #3 X [mils]    |      0.838 |
|    ENGINE VIBRATION BRG #4 Y AXIS       |  Brg #4 Y [mils]    |      0.453 |
|    ENGINE VIBRATION BRG #4 X AXIS       |  Brg #4 X [mils]    |      0.441 |
|    ENGINE VIBRATION BRG #5 Y AXIS       |  Brg #5 Y [mils]    |      0.626 |
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FLORIDA GAS

21-MAR-95 09:51:27 UNIT 1 ANALOG DATA

ENGINE VIBRATION BRG #5 X AXIS	Brg #5 X [mils]	0.452
HPC COMP RADIAL FWD Y AXIS	39CDY [mils]	0.252
HPC COMP RADIAL FWD X AXIS	39CDX [mils]	0.684
HPC COMP RADIAL AFT Y AXIS	39CNY [mils]	0.614
HPC COMP RADIAL AFT X AXIS	39CNX [mils]	0.272
HPC IBD THRUST	39CAD1 [mils]	-15.5
STATION DEWPOINT	STN DEW PT [LBS]	6.00
DISCHARGE FLOW	DIS FLOW [MSCFD]	438
FUEL FLOW	FUEL FLW [MSCFH]	49.55
CONTROL LINE SETPOINT	ConLinSP [psid]	263.5
CPSR SURGE MARGIN	CpsrSrgMarg [%]	18.7
SURGE LINE BIAS	SrgLnBias [psid]	-14.2
DEADBAND LINE SLOPE	KDB	2.470
CONTROL LINE SLOPE	KCL	2.570
SURGE LINE SLOPE	KSL	3.110
ENGINE POWER NOMINAL	E Pwr Nom [hp]	5282
ENGINE FUEL FLOW NOMINAL MMbtuH	Wf N [MMbtuH]	46.6
ENGINE PCD NOMINAL	PCD Nom [psig]	130.3
ENGINE T5 NOMINAL	T5 Nom [°F]	1372
NPT OPT	NPT Opt [%]	85.9
ENGINE POWER ACTUAL	E Pwr Act [hp]	5410
ENGINE PCD ACTUAL	PCD Act [psig]	134.0
ENGINE CONTAMINATION FACTOR	ECF [%]	2.8
ENGINE FUEL FLOW ACTUAL MMbtuH	Wf A [MMbtuH]	51.9
ENGINE POWER DELTA	E Pwr Delta [hp]	128
ENGINE T5 DELTA	T5 Delta [°F]	28
ENGINE PCD DELTA	PCD Delta [psig]	3.7
ENGINE FUEL FLOW DELTA MMbtuH	Wf D [MMbtuH]	5.3
ENGINE FUEL FLOW SCFH	Qf [mscfh]	50.61
COMPRESSOR SPEED ACTUAL	Cp Spd Act [rpm]	12521
COMPRESSOR FLOW ACFM	Cp Flow [acfm]	4793
COMPRESSOR ISENTROPIC HEAD	Cp Head [ft]	10378
COMPRESSOR EFFICIENCY ACTUAL	Cp ETA Act	0.818
COMPRESSOR SHAFT POWER	Cp Sft Pwr [hp]	~~5307~~ 6352
COMPRESSOR EFFICIENCY NOMINAL	Cp ETA Nom	0.780
COMPRESSOR SPEED NOMINAL	Cp Spd Nom [rpm]	13220
COMPRESSOR EFFICIENCY DELTA	Delta ETA	0.038
COMPRESSOR SPEED DELTA	Delta Spd [rpm]	-699
COMPRESSOR FLOW MMSCFD	Cp Flow [mmscfd]	438.4
MIN FUEL LEVEL	Min Fuel [mA]	-2.2
NGP SETPOINT	NGP SP [%]	98.1
NUMBER OF ACTIVE T5 TC's	No Act T5 TC's	6
T5 SETPOINT	T5 SP [°F]	1400
T5 THERMOCOUPLE AVERAGE	T5 Avg [°F]	1400

Run 26C-1

Unit 2601

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|*****************************************************************************|
                              FLORIDA GAS
|*****************************************************************************|
|21-MAR-95  10:05:27    UNIT 1  ANALOG DATA
|*****************************************************************************|
     NGP                                    |  NGP  [%]                |      96.8 |
     NPT                                    |  NPT  [%]                |      89.4 |
     T5 THERMOCOUPLE 1                      |  T5 TC 1 [°F]            |      1429 |
     T5 THERMOCOUPLE 2                      |  T5 TC 2 [°F]            |      1393 |
     T5 THERMOCOUPLE 3                      |  T5 TC 3 [°F]            |      1415 |
     T5 THERMOCOUPLE 4                      |  T5 TC 4 [°F]            |      1380 |
     T5 THERMOCOUPLE 5                      |  T5 TC 5 [°F]            |      1382 |
     T5 THERMOCOUPLE 6                      |  T5 TC 6 [°F]            |      1400 |
     HPC SUCTION PRESS                      |  PT50X0 [PSIG]           |     805.5 |
     HPC DISCHARGE PRESS                    |  PT50X1 [PSIG]           |    1025.3 |
     AIR INLET DP                           |  TPD358 ["H20]           |       2.4 |
     ENGINE CPSR DISCHARGE PRESS            |  PCD [psig]              |     133.2 |
     24 VDC BATTERY VOLTAGE                 |  Battery [vdc]           |      25.5 |
     LUBE OIL HEADER PRESS                  |  Lube Oil [psig]         |      59.9 |
     SUCTION  FLOW                          |  FT50X0  ["H20]          |      44.1 |
     COMP DP                                |  TPD563_1 [PSID]         |     223.9 |
     ASV POSS.                              |  ZT50X4 [%]              |      94.3 |
     FUEL GAS PRESS                         |  TP586 [PSIG]            |     206.6 |
     FUEL FLOW                              |  TPD586 ["H20]           |      30.8 |
     COMP JACKING PUMP PRESS                |  TP36QJT [PSIG]          |       1.5 |
     COMP BUFFER AIR FLOW                   |  TP80CBA [SCFM]          |       5.8 |
     GAS FUEL ACTUATOR COMMAND              |  GF Act Cmmd [mA]        |      31.9 |
     SURGE VALVE COMMAND                    |  L567 [%]                |     100.0 |
     GUIDE VANE COMMAND                     |  GV Cmmd [mA]            |      50.0 |
     LUBE OIL HEADER TEMP                   |  Lube Oil [°F]           |     144.6 |
     T1 AIR INLET TEMP                      |  T1 [°F]                 |      74.0 |
     COLD JUNCTION + COMPENSATION           |  CJ + Comp [°F]          |     283.3 |
     LUBE OIL TANK TEMP                     |  Lube Tank [°F]          |     165.3 |
     GP THRUST BRG FWD TEMP                 |  GP TB Fwd [°F]          |     183.2 |
     PT THRUST BRG AFT TEMP                 |  PT TB Aft [°F]          |     173.3 |
     ENG #1 BRG DRN TEMP                    |  #1 Bg D [°F]            |     160.4 |
     ENG #2 & #3 BRG DRN TEMP               |  #2,3 Bg D [°F]          |     169.5 |
     ENG #4 & #5 BRG DRN TEMP               |  #4,5 Bg D [°F]          |     164.8 |
     COMP DE JRNL BRG  TEMP                 |  CDEJB TMP [°F]          |     196.5 |
     CPSR INB TBT                           |  CIBTBT     [°F]         |     174.4 |
     CPSR OBD TBT                           |  COBTBT     [°F]         |     165.3 |
     COMP NDE JRNL BRG  TEMP                |  CDEJB TMP [°F]          |     179.5 |
     FUEL GAS TEMP                          |  RT586     [°F]          |      40.9 |
     SUCTION TEMP                           |  TE50X0     [°F]         |      63.0 |
     DISCHARGE TEMP                         |  TE50X1     [°F]         |      98.8 |
     ENGINE T2 TEMP 1                       |  ENG T2-1 [°F]           |     656.8 |
     ENGINE T2 TEMP 2                       |  ENG T2-2 [°F]           |     657.9 |
     ENGINE T2 TEMP 3                       |  ENG T2-3 [°F]           |     655.2 |
     ENGINE VIBRATION BRG #1 Y AXIS         |  Brg #1 Y [mils]         |     0.620 |
     ENGINE VIBRATION BRG #1 X AXIS         |  Brg #1 X [mils]         |     0.679 |
     ENGINE VIBRATION BRG #2 Y AXIS         |  Brg #2 Y [mils]         |     0.728 |
     ENGINE VIBRATION BRG #2 X AXIS         |  Brg #2 X [mils]         |     0.652 |
     ENGINE VIBRATION BRG #3 Y AXIS         |  Brg #3 Y [mils]         |     0.728 |
     ENGINE VIBRATION BRG #3 X AXIS         |  Brg #3 X [mils]         |     0.825 |
     ENGINE VIBRATION BRG #4 Y AXIS         |  Brg #4 Y [mils]         |     0.444 |
     ENGINE VIBRATION BRG #4 X AXIS         |  Brg #4 X [mils]         |     0.440 |
     ENGINE VIBRATION BRG #5 Y AXIS         |  Brg #5 Y [mils]         |     0.619 |
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|**************************************************************************|
                               FLORIDA GAS                                  |
***************************************************************************|
21-MAR-95  10:05:28    UNIT 1  ANALOG DATA                                  |
|**************************************************************************|
   ENGINE VIBRATION BRG #5 X AXIS      |  Brg #5 X [mils]      |        0.470 |
   HPC COMP RADIAL FWD Y AXIS          |  39CDY    [mils]      |        0.252 |
   HPC COMP RADIAL FWD X AXIS          |  39CDX    [mils]      |        0.706 |
   HPC COMP RADIAL AFT Y AXIS          |  39CNY    [mils]      |        0.647 |
   HPC COMP RADIAL AFT X AXIS          |  39CNX    [mils]      |        0.269 |
   HPC IBD THRUST                      |  39CAD1   [mils]      |        -15.5 |
   STATION DEWPOINT                    |  STN DEW PT [LBS]     |         5.72 |
   DISCHARGE FLOW                      |  DIS FLOW [MSCFD]     |          442 |
   FUEL FLOW                           |  FUEL FLW [MSCFH]     |        49.58 |
   CONTROL LINE SETPOINT               |  ConLinSP [psid]      |        268.9 |
   CPSR SURGE MARGIN                   |  CpsrSrgMarg [%]      |         19.9 |
   SURGE LINE BIAS                     |  SrgLnBias [psid]     |        -14.2 |
   DEADBAND LINE SLOPE                 |  KDB                  |        2.470 |
   CONTROL LINE SLOPE                  |  KCL                  |        2.570 |
   SURGE LINE SLOPE                    |  KSL                  |        3.110 |
   ENGINE POWER NOMINAL                |  E Pwr Nom [hp]       |         5282 |
   ENGINE FUEL FLOW NOMINAL MMbtuH     |  Wf N [MMbtuH]        |         46.6 |
   ENGINE PCD NOMINAL                  |  PCD Nom [psig]       |        130.3 |
   ENGINE T5 NOMINAL                   |  T5 Nom [°F]          |         1372 |
   NPT OPT                             |  NPT Opt [%]          |         85.9 |
   ENGINE POWER ACTUAL                 |  E Pwr Act [hp]       |         5449 |
   ENGINE PCD ACTUAL                   |  PCD Act [psig]       |        134.0 |
   ENGINE CONTAMINATION FACTOR         |  ECF [%]              |          2.8 |
   ENGINE FUEL FLOW ACTUAL MMbtuH      |  Wf A [MMbtuH]        |         51.9 |
   ENGINE POWER DELTA                  |  E Pwr Delta [hp]     |          167 |
   ENGINE T5 DELTA                     |  T5 Delta [°F]        |           28 |
   ENGINE PCD DELTA                    |  PCD Delta [psig]     |          3.7 |
   ENGINE FUEL FLOW DELTA MMbtuH       |  Wf D [MMbtuH]        |          5.3 |
   ENGINE FUEL FLOW SCFH               |  Qf [mscfh]           |        50.64 |
   COMPRESSOR SPEED ACTUAL             |  Cp Spd Act [rpm]     |        12512 |
   COMPRESSOR FLOW ACFM                |  Cp Flow [acfm]       |         4849 |
   COMPRESSOR ISENTROPIC HEAD          |  Cp Head [ft]         |        10258 |
   COMPRESSOR EFFICIENCY ACTUAL        |  Cp ETA Act           |        0.809 |
   COMPRESSOR SHAFT POWER              |  Cp Sft Pwr [hp]      |     ~~5352~~ | 6402
   COMPRESSOR EFFICIENCY NOMINAL       |  Cp ETA Nom           |        0.780 |
   COMPRESSOR SPEED NOMINAL            |  Cp Spd Nom [rpm]     |        13165 |
   COMPRESSOR EFFICIENCY DELTA         |  Delta ETA            |        0.029 |
   COMPRESSOR SPEED DELTA              |  Delta Spd [rpm]      |         -653 |
   COMPRESSOR FLOW MMSCFD              |  Cp Flow [mmscfd]     |        441.9 |
   MIN FUEL LEVEL                      |  Min Fuel [mA]        |         -2.2 |
   NGP SETPOINT                        |  NGP SP [%]           |         98.1 |
   NUMBER OF ACTIVE T5 TC's            |  No Act T5 TC's       |            6 |
   T5 SETPOINT                         |  T5 SP [°F]           |         1400 |
   T5 THERMOCOUPLE AVERAGE             |  T5 Avg [°F]          |         1400 |
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|*****************************************************************************|
|                            FLORIDA GAS                   Test Run 26C-2     |
|*****************************************************************************|
|21-MAR-95  12:24:13    UNIT 1  ANALOG DATA                      Unit 2601    |
|*****************************************************************************|
|   NGP                                   |  NGP [%]                |     96.5 |
|   NPT                                   |  NPT [%]                |     86.7 |
|   T5 THERMOCOUPLE 1                     |  T5 TC 1 [°F]           |     1427 |
|   T5 THERMOCOUPLE 2                     |  T5 TC 2 [°F]           |     1401 |
|   T5 THERMOCOUPLE 3                     |  T5 TC 3 [°F]           |     1419 |
|   T5 THERMOCOUPLE 4                     |  T5 TC 4 [°F]           |     1381 |
|   T5 THERMOCOUPLE 5                     |  T5 TC 5 [°F]           |     1381 |
|   T5 THERMOCOUPLE 6                     |  T5 TC 6 [°F]           |     1395 |
|   HPC SUCTION PRESS                     |  PT50X0 [PSIG]          |    833.7 |
|   HPC DISCHARGE PRESS                   |  PT50X1 [PSIG]          |   1038.5 |
|   AIR INLET DP                          |  TPD358 ["H20]          |      2.1 |
|   ENGINE CPSR DISCHARGE PRESS           |  PCD [psig]             |    130.4 |
|   24 VDC BATTERY VOLTAGE                |  Battery [vdc]          |     25.7 |
|   LUBE OIL HEADER PRESS                 |  Lube Oil [psig]        |     59.8 |
|   SUCTION  FLOW                         |  FT50X0  ["H20]         |     48.8 |
|   COMP DP                               |  TPD563_1 [PSID]        |    209.4 |
|   ASV POSS.                             |  ZT50X4 [%]             |     94.3 |
|   FUEL GAS PRESS                        |  TP586 [PSIG]           |    207.0 |
|   FUEL FLOW                             |  TPD586 ["H20]          |     29.8 |
|   COMP JACKING PUMP PRESS               |  TP36QJT [PSIG]         |      1.5 |
|   COMP BUFFER AIR FLOW                  |  TP80CBA [SCFM]         |      5.8 |
|   GAS FUEL ACTUATOR COMMAND             |  GF Act Cmmd [mA]       |     31.9 |
|   SURGE VALVE COMMAND                   |  L567 [%]               |    100.0 |
|   GUIDE VANE COMMAND                    |  GV Cmmd [mA]           |     50.0 |
|   LUBE OIL HEADER TEMP                  |  Lube Oil [°F]          |    144.6 |
|   T1 AIR INLET TEMP                     |  T1 [°F]                |     78.0 |
|   COLD JUNCTION + COMPENSATION          |  CJ + Comp [°F]         |    290.5 |
|   LUBE OIL TANK TEMP                    |  Lube Tank [°F]         |    164.6 |
|   GP THRUST BRG FWD TEMP                |  GP TB Fwd [°F]         |    183.7 |
|   PT THRUST BRG AFT TEMP                |  PT TB Aft [°F]         |    172.8 |
|   ENG #1 BRG DRN TEMP                   |  #1 Bg D [°F]           |    160.7 |
|   ENG #2 & #3 BRG DRN TEMP              |  #2,3 Bg D [°F]         |    169.5 |
|   ENG #4 & #5 BRG DRN TEMP              |  #4,5 Bg D [°F]         |    163.6 |
|   COMP DE JRNL BRG  TEMP                |  CDEJB TMP [°F]         |    195.4 |
|   CPSR INB TBT                          |  CIBTBT     [°F]        |    175.0 |
|   CPSR OBD TBT                          |  COBTBT     [°F]        |    163.6 |
|   COMP NDE JRNL BRG  TEMP               |  CDEJB TMP [°F]         |    178.7 |
|   FUEL GAS TEMP                         |  RT586    [°F]          |     43.1 |
|   SUCTION TEMP                          |  TE50X0    [°F]         |     63.3 |
|   DISCHARGE TEMP                        |  TE50X1    [°F]         |     96.0 |
|   ENGINE T2 TEMP 1                      |  ENG T2-1 [°F]          |    659.5 |
|   ENGINE T2 TEMP 2                      |  ENG T2-2 [°F]          |    661.0 |
|   ENGINE T2 TEMP 3                      |  ENG T2-3 [°F]          |    657.0 |
|   ENGINE VIBRATION BRG #1 Y AXIS        |  Brg #1 Y [mils]        |    0.596 |
|   ENGINE VIBRATION BRG #1 X AXIS        |  Brg #1 X [mils]        |    0.676 |
|   ENGINE VIBRATION BRG #2 Y AXIS        |  Brg #2 Y [mils]        |    0.740 |
|   ENGINE VIBRATION BRG #2 X AXIS        |  Brg #2 X [mils]        |    0.645 |
|   ENGINE VIBRATION BRG #3 Y AXIS        |  Brg #3 Y [mils]        |    0.720 |
|   ENGINE VIBRATION BRG #3 X AXIS        |  Brg #3 X [mils]        |    0.806 |
|   ENGINE VIBRATION BRG #4 Y AXIS        |  Brg #4 Y [mils]        |    0.496 |
|   ENGINE VIBRATION BRG #4 X AXIS        |  Brg #4 X [mils]        |    0.490 |
|   ENGINE VIBRATION BRG #5 Y AXIS        |  Brg #5 Y [mils]        |    0.659 |
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|**************************************************************************|
                              FLORIDA GAS                                  |
***************************************************************************|
|21-MAR-95  12:24:14    UNIT 1  ANALOG DATA                                 |
|**************************************************************************|
     ENGINE VIBRATION BRG #5 X AXIS       |  Brg #5 X [mils]      |       0.504 |
     HPC COMP RADIAL FWD Y AXIS           |  39CDY    [mils]      |       0.252 |
     HPC COMP RADIAL FWD X AXIS           |  39CDX    [mils]      |       0.648 |
     HPC COMP RADIAL AFT Y AXIS           |  39CNY    [mils]      |       0.527 |
     HPC COMP RADIAL AFT X AXIS           |  39CNX    [mils]      |       0.261 |
     HPC IBD THRUST                       |  39CAD1   [mils]      |       -16.0 |
     STATION DEWPOINT                     |  STN DEW PT [LBS]     |        5.52 |
     DISCHARGE FLOW                       |  DIS FLOW [MSCFD]     |         473 |
     FUEL FLOW                            |  FUEL FLW [MSCFH]     |       48.71 |
     CONTROL LINE SETPOINT                |  ConLinSP [psid]      |       299.0 |
     CPSR SURGE MARGIN                    |  CpsrSrgMarg [%]      |        30.1 |
     SURGE LINE BIAS                      |  SrgLnBias [psid]     |       -14.2 |
     DEADBAND LINE SLOPE                  |  KDB                  |       2.470 |
     CONTROL LINE SLOPE                   |  KCL                  |       2.570 |
     SURGE LINE SLOPE                     |  KSL                  |       3.110 |
     ENGINE POWER NOMINAL                 |  E Pwr Nom [hp]       |        5118 |
     ENGINE FUEL FLOW NOMINAL MMbtuH      |  Wf N [MMbtuH]        |        45.6 |
     ENGINE PCD NOMINAL                   |  PCD Nom [psig]       |       127.7 |
     ENGINE T5 NOMINAL                    |  T5 Nom [°F]          |        1372 |
     NPT OPT                              |  NPT Opt [%]          |        85.4 |
     ENGINE POWER ACTUAL                  |  E Pwr Act [hp]       |        5292 |
     ENGINE PCD ACTUAL                    |  PCD Act [psig]       |       131.0 |
     ENGINE CONTAMINATION FACTOR          |  ECF [%]              |         2.5 |
     ENGINE FUEL FLOW ACTUAL MMbtuH       |  Wf A [MMbtuH]        |        51.0 |
     ENGINE POWER DELTA                   |  E Pwr Delta [hp]     |         174 |
     ENGINE T5 DELTA                      |  T5 Delta [°F]        |          29 |
     ENGINE PCD DELTA                     |  PCD Delta [psig]     |         3.3 |
     ENGINE FUEL FLOW DELTA MMbtuH        |  Wf D [MMbtuH]        |         5.4 |
     ENGINE FUEL FLOW SCFH                |  Qf [mscfh]           |       49.75 |
     COMPRESSOR SPEED ACTUAL              |  Cp Spd Act [rpm]     |       12143 |
     COMPRESSOR FLOW ACFM                 |  Cp Flow [acfm]       |        5000 |
     COMPRESSOR ISENTROPIC HEAD           |  Cp Head [ft]         |        9287 |
     COMPRESSOR EFFICIENCY ACTUAL         |  Cp ETA Act           |       0.805 |
     COMPRESSOR SHAFT POWER               |  Cp Sft Pwr [hp]      |        5211 | 6149
     COMPRESSOR EFFICIENCY NOMINAL        |  Cp ETA Nom           |       0.780 |
     COMPRESSOR SPEED NOMINAL             |  Cp Spd Nom [rpm]     |       12647 |
     COMPRESSOR EFFICIENCY DELTA          |  Delta ETA            |       0.025 |
     COMPRESSOR SPEED DELTA               |  Delta Spd [rpm]      |        -504 |
     COMPRESSOR FLOW MMSCFD               |  Cp Flow [mmscfd]     |       473.0 |
     MIN FUEL LEVEL                       |  Min Fuel [mA]        |        -2.1 |
     NGP SETPOINT                         |  NGP SP [%]           |        98.1 |
     NUMBER OF ACTIVE T5 TC's             |  No Act T5 TC's       |           6 |
     T5 SETPOINT                          |  T5 SP [°F]           |        1400 |
     T5 THERMOCOUPLE AVERAGE              |  T5 Avg [°F]          |        1401 |
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|*****************************************************************************|
|                                FLORIDA GAS           Test Run 26C-3         |
|*****************************************************************************|
|21-MAR-95  13:06:06    UNIT 1  ANALOG DATA                     Unit2601      |
|*****************************************************************************|
     NGP                                   |  NGP [%]                |      96.5 | 96.5
     NPT                                   |  NPT [%]                |      86.6 | 85.5
     T5 THERMOCOUPLE 1                     |  T5 TC 1 [°F]           |      1428 |
     T5 THERMOCOUPLE 2                     |  T5 TC 2 [°F]           |      1398 |
     T5 THERMOCOUPLE 3                     |  T5 TC 3 [°F]           |      1419 |
     T5 THERMOCOUPLE 4                     |  T5 TC 4 [°F]           |      1381 |
     T5 THERMOCOUPLE 5                     |  T5 TC 5 [°F]           |      1376 |
     T5 THERMOCOUPLE 6                     |  T5 TC 6 [°F]           |      1403 |
     HPC SUCTION PRESS                     |  PT50X0 [PSIG]          |     835.5 | 871.1
     HPC DISCHARGE PRESS                   |  PT50X1 [PSIG]          |    1037.4 | 1039.9
     AIR INLET DP                          |  TPD358 ["H20]          |       2.1 |
     ENGINE CPSR DISCHARGE PRESS           |  PCD [psig]             |     130.6 |
     24 VDC BATTERY VOLTAGE                |  Battery [vdc]          |      25.7 |
     LUBE OIL HEADER PRESS                 |  Lube Oil [psig]        |      60.1 |
     SUCTION  FLOW                         |  FT50X0  ["H20]         |      48.7 |
     COMP DP                               |  TPD563_1 [PSID]        |     209.4 |
     ASV POSS.                             |  ZT50X4 [%]             |      94.3 |
     FUEL GAS PRESS                        |  TP586 [PSIG]           |     207.1 |
     FUEL FLOW                             |  TPD586 ["H20]          |      29.7 |
     COMP JACKING PUMP PRESS               |  TP36QJT [PSIG]         |       1.5 |
     COMP BUFFER AIR FLOW                  |  TP80CBA [SCFM]         |       5.8 |
     GAS FUEL ACTUATOR COMMAND             |  GF Act Cmmd [mA]       |      31.9 |
     SURGE VALVE COMMAND                   |  L567 [%]               |      99.9 |
     GUIDE VANE COMMAND                    |  GV Cmmd [mA]           |      50.0 |
     LUBE OIL HEADER TEMP                  |  Lube Oil [°F]          |     144.9 |
     T1 AIR INLET TEMP                     |  T1 [°F]                |      78.6 | 78.3
     COLD JUNCTION + COMPENSATION          |  CJ + Comp [°F]         |     291.3 |
     LUBE OIL TANK TEMP                    |  Lube Tank [°F]         |     164.7 |
     GP THRUST BRG FWD TEMP                |  GP TB Fwd [°F]         |     184.1 |
     PT THRUST BRG AFT TEMP                |  PT TB Aft [°F]         |     173.1 |
     ENG #1 BRG DRN TEMP                   |  #1 Bg D [°F]           |     160.9 |
     ENG #2 & #3 BRG DRN TEMP              |  #2,3 Bg D [°F]         |     169.6 |
     ENG #4 & #5 BRG DRN TEMP              |  #4,5 Bg D [°F]         |     163.9 |
     COMP DE JRNL BRG  TEMP                |  CDEJB TMP [°F]         |     195.5 |
     CPSR INB TBT                          |  CIBTBT     [°F]        |     175.1 |
     CPSR OBD TBT                          |  COBTBT     [°F]        |     164.0 |
     COMP NDE JRNL BRG  TEMP               |  CDEJB TMP [°F]         |     178.9 |
     FUEL GAS TEMP                         |  RT586    [°F]          |      43.3 |
     SUCTION TEMP                          |  TE50X0    [°F]         |      63.3 | 63.3
     DISCHARGE TEMP                        |  TE50X1    [°F]         |      95.8 | 95.7
     ENGINE T2 TEMP 1                      |  ENG T2-1 [°F]          |     659.6 |
     ENGINE T2 TEMP 2                      |  ENG T2-2 [°F]          |     660.3 |
     ENGINE T2 TEMP 3                      |  ENG T2-3 [°F]          |     657.2 |
     ENGINE VIBRATION BRG #1 Y AXIS        |  Brg #1 Y [mils]        |     0.630 |
     ENGINE VIBRATION BRG #1 X AXIS        |  Brg #1 X [mils]        |     0.662 |
     ENGINE VIBRATION BRG #2 Y AXIS        |  Brg #2 Y [mils]        |     0.723 |
     ENGINE VIBRATION BRG #2 X AXIS        |  Brg #2 X [mils]        |     0.637 |
     ENGINE VIBRATION BRG #3 Y AXIS        |  Brg #3 Y [mils]        |     0.716 |
     ENGINE VIBRATION BRG #3 X AXIS        |  Brg #3 X [mils]        |     0.821 |
     ENGINE VIBRATION BRG #4 Y AXIS        |  Brg #4 Y [mils]        |     0.480 |
     ENGINE VIBRATION BRG #4 X AXIS        |  Brg #4 X [mils]        |     0.479 |
     ENGINE VIBRATION BRG #5 Y AXIS        |  Brg #5 Y [mils]        |     0.637 |
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|*****************************************************************|
                          FLORIDA GAS                              |
******************************************************************|
21-MAR-95  13:06:07    UNIT 1  ANALOG DATA                         |
|*****************************************************************|
   ENGINE VIBRATION BRG #5 X AXIS       | Brg #5 X [mils]   |      0.470 |
   HPC COMP RADIAL FWD Y AXIS           | 39CDY    [mils]   |      0.248 |
   HPC COMP RADIAL FWD X AXIS           | 39CDX    [mils]   |      0.643 |
   HPC COMP RADIAL AFT Y AXIS           | 39CNY    [mils]   |      0.532 |
   HPC COMP RADIAL AFT X AXIS           | 39CNX    [mils]   |      0.266 |
   HPC IBD THRUST                       | 39CAD1   [mils]   |      -16.0 |
   STATION DEWPOINT                     | STN DEW PT [LBS]  |       5.07 |
   DISCHARGE FLOW                       | DIS FLOW [MSCFD]  |        473 |
   FUEL FLOW                            | FUEL FLW [MSCFH]  |      48.64 |
   CONTROL LINE SETPOINT                | ConLinSP [psid]   |      298.5 |
   CPSR SURGE MARGIN                    | CpsrSrgMarg [%]   |       30.1 |
   SURGE LINE BIAS                      | SrgLnBias [psid]  |      -14.2 |
   DEADBAND LINE SLOPE                  | KDB               |      2.470 |
   CONTROL LINE SLOPE                   | KCL               |      2.570 |
   SURGE LINE SLOPE                     | KSL               |      3.110 |
   ENGINE POWER NOMINAL                 | E Pwr Nom [hp]    |       5107 |
   ENGINE FUEL FLOW NOMINAL MMbtuH      | Wf N [MMbtuH]     |       45.6 |
   ENGINE PCD NOMINAL                   | PCD Nom [psig]    |      127.6 |
   ENGINE T5 NOMINAL                    | T5 Nom [°F]       |       1373 |
   NPT OPT                              | NPT Opt [%]       |       85.4 |
   ENGINE POWER ACTUAL                  | E Pwr Act [hp]    |       5256 |
   ENGINE PCD ACTUAL                    | PCD Act [psig]    |      131.3 |131.1
   ENGINE CONTAMINATION FACTOR          | ECF [%]           |        2.8 |
   ENGINE FUEL FLOW ACTUAL MMbtuH       | Wf A [MMbtuH]     |       50.9 |
   ENGINE POWER DELTA                   | E Pwr Delta [hp]  |        149 |
   ENGINE T5 DELTA                      | T5 Delta [°F]     |         28 |
   ENGINE PCD DELTA                     | PCD Delta [psig]  |        3.7 |
   ENGINE FUEL FLOW DELTA MMbtuH        | Wf D [MMbtuH]     |        5.3 |
   ENGINE FUEL FLOW SCFH                | Qf [mscfh]        |      49.68 | 49.67
   COMPRESSOR SPEED ACTUAL              | Cp Spd Act [rpm]  |      12127 |
   COMPRESSOR FLOW ACFM                 | Cp Flow [acfm]    |       4985 |
   COMPRESSOR ISENTROPIC HEAD           | Cp Head [ft]      |       9144 |
   COMPRESSOR EFFICIENCY ACTUAL         | Cp ETA Act        |      0.797 |ISO
   COMPRESSOR SHAFT POWER               | Cp Sft Pwr [hp]   |       5176 |6219
   COMPRESSOR EFFICIENCY NOMINAL        | Cp ETA Nom        |      0.780 |6243
   COMPRESSOR SPEED NOMINAL             | Cp Spd Nom [rpm]  |      12556 |
   COMPRESSOR EFFICIENCY DELTA          | Delta ETA         |      0.017 |
   COMPRESSOR SPEED DELTA               | Delta Spd [rpm]   |       -429 |
   COMPRESSOR FLOW MMSCFD               | Cp Flow [mmscfd]  |      472.8 |466.7
   MIN FUEL LEVEL                       | Min Fuel [mA]     |       -2.1 |
   NGP SETPOINT                         | NGP SP [%]        |       98.1 |
   NUMBER OF ACTIVE T5 TC's             | No Act T5 TC's    |          6 |
   T5 SETPOINT                          | T5 SP [°F]        |       1400 |
   T5 THERMOCOUPLE AVERAGE              | T5 Avg [°F]       |       1401 | 1400
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Run26C-3

Unit2601

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|****************************************************************************|
                                FLORIDA GAS
******************************************************************************
21-MAR-95  13:16:45    UNIT 1  ANALOG DATA
|****************************************************************************|
     NGP                                 | NGP [%]                |      96.5 |
     NPT                                 | NPT [%]                |      86.6 |
     T5 THERMOCOUPLE 1                   | T5 TC 1 [°F]           |      1428 |
     T5 THERMOCOUPLE 2                   | T5 TC 2 [°F]           |      1397 |
     T5 THERMOCOUPLE 3                   | T5 TC 3 [°F]           |      1419 |
     T5 THERMOCOUPLE 4                   | T5 TC 4 [°F]           |      1383 |
     T5 THERMOCOUPLE 5                   | T5 TC 5 [°F]           |      1381 |
     T5 THERMOCOUPLE 6                   | T5 TC 6 [°F]           |      1399 |
     HPC SUCTION PRESS                   | PT50X0 [PSIG]          |     837.0 |
     HPC DISCHARGE PRESS                 | PT50X1 [PSIG]          |    1040.7 |
     AIR INLET DP                        | TPD358 ["H20]          |       2.5 |
     ENGINE CPSR DISCHARGE PRESS         | PCD [psig]             |     130.7 |
     24 VDC BATTERY VOLTAGE              | Battery [vdc]          |      25.7 |
     LUBE OIL HEADER PRESS               | Lube Oil [psig]        |      60.0 |
     SUCTION  FLOW                       | FT50X0  ["H20]         |      45.7 |
     COMP DP                             | TPD563_1 [PSID]        |     209.6 |
     ASV POSS.                           | ZT50X4 [%]             |      94.3 |
     FUEL GAS PRESS                      | TP586 [PSIG]           |     207.0 |
     FUEL FLOW                           | TPD586 ["H20]          |      29.9 |
     COMP JACKING PUMP PRESS             | TP36QJT [PSIG]         |       0.7 |
     COMP BUFFER AIR FLOW                | TP80CBA [SCFM]         |       5.8 |
     GAS FUEL ACTUATOR COMMAND           | GF Act Cmmd [mA]       |      31.9 |
     SURGE VALVE COMMAND                 | L567 [%]               |      99.4 |
     GUIDE VANE COMMAND                  | GV Cmmd [mA]           |      50.0 |
     LUBE OIL HEADER TEMP                | Lube Oil [°F]          |     144.6 |
     T1 AIR INLET TEMP                   | T1 [°F]                |      77.7 |
     COLD JUNCTION + COMPENSATION        | CJ + Comp [°F]         |     291.6 |
     LUBE OIL TANK TEMP                  | Lube Tank [°F]         |     164.7 |
     GP THRUST BRG FWD TEMP              | GP TB Fwd [°F]         |     184.7 |
     PT THRUST BRG AFT TEMP              | PT TB Aft [°F]         |     172.9 |
     ENG #1 BRG DRN TEMP                 | #1 Bg D [°F]           |     160.9 |
     ENG #2 & #3 BRG DRN TEMP            | #2,3 Bg D [°F]         |     169.6 |
     ENG #4 & #5 BRG DRN TEMP            | #4,5 Bg D [°F]         |     163.7 |
     COMP DE JRNL BRG  TEMP              | CDEJB TMP [°F]         |     195.6 |
     CPSR INB TBT                        | CIBTBT    [°F]         |     174.7 |
     CPSR OBD TBT                        | COBTBT    [°F]         |     163.7 |
     COMP NDE JRNL BRG  TEMP             | CDEJB TMP [°F]         |     178.7 |
     FUEL GAS TEMP                       | RT586    [°F]          |      43.2 |
     SUCTION TEMP                        | TE50X0    [°F]         |      63.3 |
     DISCHARGE TEMP                      | TE50X1    [°F]         |      95.7 |
     ENGINE T2 TEMP 1                    | ENG T2-1 [°F]          |     658.3 |
     ENGINE T2 TEMP 2                    | ENG T2-2 [°F]          |     661.4 |
     ENGINE T2 TEMP 3                    | ENG T2-3 [°F]          |     656.1 |
     ENGINE VIBRATION BRG #1 Y AXIS      | Brg #1 Y [mils]        |     0.601 |
     ENGINE VIBRATION BRG #1 X AXIS      | Brg #1 X [mils]        |     0.674 |
     ENGINE VIBRATION BRG #2 Y AXIS      | Brg #2 Y [mils]        |     0.728 |
     ENGINE VIBRATION BRG #2 X AXIS      | Brg #2 X [mils]        |     0.654 |
     ENGINE VIBRATION BRG #3 Y AXIS      | Brg #3 Y [mils]        |     0.725 |
     ENGINE VIBRATION BRG #3 X AXIS      | Brg #3 X [mils]        |     0.801 |
     ENGINE VIBRATION BRG #4 Y AXIS      | Brg #4 Y [mils]        |     0.444 |
     ENGINE VIBRATION BRG #4 X AXIS      | Brg #4 X [mils]        |     0.418 |
     ENGINE VIBRATION BRG #5 Y AXIS      | Brg #5 Y [mils]        |     0.578 |
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|***************************************************************************|
                                FLORIDA GAS                                 |
****************************************************************************|
21-MAR-95  13:16:46    UNIT 1  ANALOG DATA                                  |
|***************************************************************************|
   ENGINE VIBRATION BRG #5 X AXIS         | Brg #5 X [mils]    |      0.440 |
   HPC COMP RADIAL FWD Y AXIS             | 39CDY    [mils]    |      0.252 |
   HPC COMP RADIAL FWD X AXIS             | 39CDX    [mils]    |      0.641 |
   HPC COMP RADIAL AFT Y AXIS             | 39CNY    [mils]    |      0.524 |
   HPC COMP RADIAL AFT X AXIS             | 39CNX    [mils]    |      0.260 |
   HPC IBD THRUST                         | 39CAD1   [mils]    |      -16.0 |
   STATION DEWPOINT                       | STN DEW PT [LBS]   |       5.24 |
   DISCHARGE FLOW                         | DIS FLOW [MSCFD]   |        458 |
   FUEL FLOW                              | FUEL FLW [MSCFH]   |      48.77 |
   CONTROL LINE SETPOINT                  | ConLinSP [psid]    |      279.2 |
   CPSR SURGE MARGIN                      | CpsrSrgMarg [%]    |       25.9 |
   SURGE LINE BIAS                        | SrgLnBias [psid]   |      -14.2 |
   DEADBAND LINE SLOPE                    | KDB                |      2.470 |
   CONTROL LINE SLOPE                     | KCL                |      2.570 |
   SURGE LINE SLOPE                       | KSL                |      3.110 |
   ENGINE POWER NOMINAL                   | E Pwr Nom [hp]     |       5103 |
   ENGINE FUEL FLOW NOMINAL MMbtuH        | Wf N [MMbtuH]      |       45.6 |
   ENGINE PCD NOMINAL                     | PCD Nom [psig]     |      127.5 |
   ENGINE T5 NOMINAL                      | T5 Nom [°F]        |       1372 |
   NPT OPT                                | NPT Opt [%]        |       85.4 |
   ENGINE POWER ACTUAL                    | E Pwr Act [hp]     |       5091 |
   ENGINE PCD ACTUAL                      | PCD Act [psig]     |      131.5 |
   ENGINE CONTAMINATION FACTOR            | ECF [%]            |        3.1 |
   ENGINE FUEL FLOW ACTUAL MMbtuH         | Wf A [MMbtuH]      |       51.1 |
   ENGINE POWER DELTA                     | E Pwr Delta [hp]   |        -12 |
   ENGINE T5 DELTA                        | T5 Delta [°F]      |         29 |
   ENGINE PCD DELTA                       | PCD Delta [psig]   |        4.0 |
   ENGINE FUEL FLOW DELTA MMbtuH          | Wf D [MMbtuH]      |        5.5 |
   ENGINE FUEL FLOW SCFH                  | Qf [mscfh]         |      49.81 |
   COMPRESSOR SPEED ACTUAL                | Cp Spd Act [rpm]   |      12127 |
   COMPRESSOR FLOW ACFM                   | Cp Flow [acfm]     |       4824 |
   COMPRESSOR ISENTROPIC HEAD             | Cp Head [ft]       |       9203 |
   COMPRESSOR EFFICIENCY ACTUAL           | Cp ETA Act         |      0.805 |
   COMPRESSOR SHAFT POWER                 | Cp Sft Pwr [hp]    |       5001 | 601
   COMPRESSOR EFFICIENCY NOMINAL          | Cp ETA Nom         |      0.780 |
   COMPRESSOR SPEED NOMINAL               | Cp Spd Nom [rpm]   |      12534 |
   COMPRESSOR EFFICIENCY DELTA            | Delta ETA          |      0.025 |
   COMPRESSOR SPEED DELTA                 | Delta Spd [rpm]    |       -407 |
   COMPRESSOR FLOW MMSCFD                 | Cp Flow [mmscfd]   |      458.4 |
   MIN FUEL LEVEL                         | Min Fuel [mA]      |       -2.1 |
   NGP SETPOINT                           | NGP SP [%]         |       98.1 |
   NUMBER OF ACTIVE T5 TC's               | No Act T5 TC's     |          6 |
   T5 SETPOINT                            | T5 SP [°F]         |       1400 |
   T5 THERMOCOUPLE AVERAGE                | T5 Avg [°F]        |       1401 |
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|****************************************************************************|
                              FLORIDA GAS                            Run 26C-3|
|****************************************************************************|
|21-MAR-95  13:29:20    UNIT 1  ANALOG DATA                          Unit2601|
|****************************************************************************|
     NGP                                 |  NGP [%]               |      96.4 |
     NPT                                 |  NPT [%]               |      86.5 |
     T5 THERMOCOUPLE 1                   |  T5 TC 1 [°F]          |      1428 |
     T5 THERMOCOUPLE 2                   |  T5 TC 2 [°F]          |      1399 |
     T5 THERMOCOUPLE 3                   |  T5 TC 3 [°F]          |      1422 |
     T5 THERMOCOUPLE 4                   |  T5 TC 4 [°F]          |      1383 |
     T5 THERMOCOUPLE 5                   |  T5 TC 5 [°F]          |      1381 |
     T5 THERMOCOUPLE 6                   |  T5 TC 6 [°F]          |      1402 |
     HPC SUCTION PRESS                   |  PT50X0 [PSIG]         |     838.1 |
     HPC DISCHARGE PRESS                 |  PT50X1 [PSIG]         |    1039.2 |
     AIR INLET DP                        |  TPD358 ["H20]         |       2.2 |
     ENGINE CPSR DISCHARGE PRESS         |  PCD [psig]            |     130.3 |
     24 VDC BATTERY VOLTAGE              |  Battery [vdc]         |      25.5 |
     LUBE OIL HEADER PRESS               |  Lube Oil [psig]       |      59.9 |
     SUCTION  FLOW                       |  FT50X0  ["H20]        |      47.9 |
     COMP DP                             |  TPD563_1 [PSID]       |     209.0 |
     ASV POSS.                           |  ZT50X4 [%]            |      94.4 |
     FUEL GAS PRESS                      |  TP586 [PSIG]          |     207.1 |
     FUEL FLOW                           |  TPD586 ["H20]         |      29.6 |
     COMP JACKING PUMP PRESS             |  TP36QJT [PSIG]        |       1.5 |
     COMP BUFFER AIR FLOW                |  TP80CBA [SCFM]        |       5.8 |
     GAS FUEL ACTUATOR COMMAND           |  GF Act Cmmd [mA]      |      31.8 |
     SURGE VALVE COMMAND                 |  L567 [%]              |      99.8 |
     GUIDE VANE COMMAND                  |  GV Cmmd [mA]          |      50.0 |
     LUBE OIL HEADER TEMP                |  Lube Oil [°F]         |     144.8 |
     T1 AIR INLET TEMP                   |  T1 [°F]               |      78.7 |
     COLD JUNCTION + COMPENSATION        |  CJ + Comp [°F]        |     292.0 |
     LUBE OIL TANK TEMP                  |  Lube Tank [°F]        |     164.6 |
     GP THRUST BRG FWD TEMP              |  GP TB Fwd [°F]        |     184.1 |
     PT THRUST BRG AFT TEMP              |  PT TB Aft [°F]        |     172.9 |
     ENG #1 BRG DRN TEMP                 |  #1 Bg D [°F]          |     160.8 |
     ENG #2 & #3 BRG DRN TEMP            |  #2,3 Bg D [°F]        |     169.5 |
     ENG #4 & #5 BRG DRN TEMP            |  #4,5 Bg D [°F]        |     163.7 |
     COMP DE JRNL BRG  TEMP              |  CDEJB TMP [°F]        |     195.8 |
     CPSR INB TBT                        |  CIBTBT     [°F]       |     175.0 |
     CPSR OBD TBT                        |  COBTBT     [°F]       |     163.9 |
     COMP NDE JRNL BRG  TEMP             |  CDEJB TMP [°F]        |     178.7 |
     FUEL GAS TEMP                       |  RT586     [°F]        |      43.1 |
     SUCTION TEMP                        |  TE50X0    [°F]        |      63.3 |
     DISCHARGE TEMP                      |  TE50X1    [°F]        |      95.7 |
     ENGINE T2 TEMP 1                    |  ENG T2-1 [°F]         |     659.3 |
     ENGINE T2 TEMP 2                    |  ENG T2-2 [°F]         |     660.8 |
     ENGINE T2 TEMP 3                    |  ENG T2-3 [°F]         |     656.9 |
     ENGINE VIBRATION BRG #1 Y AXIS      |  Brg #1 Y [mils]       |     0.615 |
     ENGINE VIBRATION BRG #1 X AXIS      |  Brg #1 X [mils]       |     0.659 |
     ENGINE VIBRATION BRG #2 Y AXIS      |  Brg #2 Y [mils]       |     0.728 |
     ENGINE VIBRATION BRG #2 X AXIS      |  Brg #2 X [mils]       |     0.640 |
     ENGINE VIBRATION BRG #3 Y AXIS      |  Brg #3 Y [mils]       |     0.750 |
     ENGINE VIBRATION BRG #3 X AXIS      |  Brg #3 X [mils]       |     0.825 |
     ENGINE VIBRATION BRG #4 Y AXIS      |  Brg #4 Y [mils]       |     0.452 |
     ENGINE VIBRATION BRG #4 X AXIS      |  Brg #4 X [mils]       |     0.442 |
     ENGINE VIBRATION BRG #5 Y AXIS      |  Brg #5 Y [mils]       |     0.578 |
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|**************************************************************************|
|                                FLORIDA GAS                                |
|**************************************************************************|
|21-MAR-95  13:29:21    UNIT 1  ANALOG DATA                                 |
|**************************************************************************|
   ENGINE VIBRATION BRG #5 X AXIS       |  Brg #5 X [mils]        |       0.420 |
   HPC COMP RADIAL FWD Y AXIS           |  39CDY    [mils]        |       0.250 |
   HPC COMP RADIAL FWD X AXIS           |  39CDX    [mils]        |       0.643 |
   HPC COMP RADIAL AFT Y AXIS           |  39CNY    [mils]        |       0.526 |
   HPC COMP RADIAL AFT X AXIS           |  39CNX    [mils]        |       0.263 |
   HPC IBD THRUST                       |  39CAD1   [mils]        |       -15.9 |
   STATION DEWPOINT                     |  STN DEW PT [LBS]       |        4.98 |
   DISCHARGE FLOW                       |  DIS FLOW [MSCFD]       |         470 |
   FUEL FLOW                            |  FUEL FLW [MSCFH]       |       48.51 |
   CONTROL LINE SETPOINT                |  ConLinSP [psid]        |       290.8 |
   CPSR SURGE MARGIN                    |  CpsrSrgMarg [%]        |        28.3 |
   SURGE LINE BIAS                      |  SrgLnBias [psid]       |       -14.2 |
   DEADBAND LINE SLOPE                  |  KDB                    |       2.470 |
   CONTROL LINE SLOPE                   |  KCL                    |       2.570 |
   SURGE LINE SLOPE                     |  KSL                    |       3.110 |
   ENGINE POWER NOMINAL                 |  E Pwr Nom [hp]         |        5076 |
   ENGINE FUEL FLOW NOMINAL MMbtuH      |  Wf N [MMbtuH]          |        45.4 |
   ENGINE PCD NOMINAL                   |  PCD Nom [psig]         |       127.1 |
   ENGINE T5 NOMINAL                    |  T5 Nom [°F]            |        1372 |
   NPT OPT                              |  NPT Opt [%]            |        85.3 |
   ENGINE POWER ACTUAL                  |  E Pwr Act [hp]         |        5208 |
   ENGINE PCD ACTUAL                    |  PCD Act [psig]         |       130.9 |
   ENGINE CONTAMINATION FACTOR          |  ECF [%]                |         2.9 |
   ENGINE FUEL FLOW ACTUAL MMbtuH       |  Wf A [MMbtuH]          |        50.8 |
   ENGINE POWER DELTA                   |  E Pwr Delta [hp]       |         132 |
   ENGINE T5 DELTA                      |  T5 Delta [°F]          |          30 |
   ENGINE PCD DELTA                     |  PCD Delta [psig]       |         3.8 |
   ENGINE FUEL FLOW DELTA MMbtuH        |  Wf D [MMbtuH]          |         5.4 |
   ENGINE FUEL FLOW SCFH                |  Qf [mscfh]             |       49.55 |
   COMPRESSOR SPEED ACTUAL              |  Cp Spd Act [rpm]       |       12106 |
   COMPRESSOR FLOW ACFM                 |  Cp Flow [acfm]         |        4936 |
   COMPRESSOR ISENTROPIC HEAD           |  Cp Head [ft]           |        9085 |
   COMPRESSOR EFFICIENCY ACTUAL         |  Cp ETA Act             |       0.795 |
   COMPRESSOR SHAFT POWER               |  Cp Sft Pwr [hp]        |        5125 | 6379
   COMPRESSOR EFFICIENCY NOMINAL        |  Cp ETA Nom             |       0.780 |
   COMPRESSOR SPEED NOMINAL             |  Cp Spd Nom [rpm]       |       12501 |
   COMPRESSOR EFFICIENCY DELTA          |  Delta ETA              |       0.015 |
   COMPRESSOR SPEED DELTA               |  Delta Spd [rpm]        |        -395 |
   COMPRESSOR FLOW MMSCFD               |  Cp Flow [mmscfd]       |       469.7 |
   MIN FUEL LEVEL                       |  Min Fuel [mA]          |        -2.1 |
   NGP SETPOINT                         |  NGP SP [%]             |        98.1 |
   NUMBER OF ACTIVE T5 TC's             |  No Act T5 TC's         |           6 |
   T5 SETPOINT                          |  T5 SP [°F]             |        1400 |
   T5 THERMOCOUPLE AVERAGE              |  T5 Avg [°F]            |        1402 |
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Run 26C-3

Unit 2601

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|*****************************************************************************|
                              FLORIDA GAS                                      |
*******************************************************************************|
|21-MAR-95  13:38:10    UNIT 1  ANALOG DATA                                    |
|*****************************************************************************|
   NGP                                    |  NGP [%]              |       96.5 |
   NPT                                    |  NPT [%]              |       86.5 |
   T5 THERMOCOUPLE 1                      |  T5 TC 1 [°F]         |       1429 |
   T5 THERMOCOUPLE 2                      |  T5 TC 2 [°F]         |       1393 |
   T5 THERMOCOUPLE 3                      |  T5 TC 3 [°F]         |       1413 |
   T5 THERMOCOUPLE 4                      |  T5 TC 4 [°F]         |       1377 |
   T5 THERMOCOUPLE 5                      |  T5 TC 5 [°F]         |       1376 |
   T5 THERMOCOUPLE 6                      |  T5 TC 6 [°F]         |       1399 |
   HPC SUCTION PRESS                      |  PT50X0 [PSIG]        |      838.8 |
   HPC DISCHARGE PRESS                    |  PT50X1 [PSIG]        |     1042.9 |
   AIR INLET DP                           |  TPD358 ["H20]        |        2.5 |
   ENGINE CPSR DISCHARGE PRESS            |  PCD [psig]           |      130.5 |
   24 VDC BATTERY VOLTAGE                 |  Battery [vdc]        |       25.6 |
   LUBE OIL HEADER PRESS                  |  Lube Oil [psig]      |       59.7 |
   SUCTION  FLOW                          |  FT50X0  ["H20]       |       47.4 |
   COMP DP                                |  TPD563_1 [PSID]      |      209.7 |
   ASV POSS.                              |  ZT50X4 [%]           |       94.3 |
   FUEL GAS PRESS                         |  TP586 [PSIG]         |      207.3 |
   FUEL FLOW                              |  TPD586 ["H20]        |       29.7 |
   COMP JACKING PUMP PRESS                |  TP36QJT [PSIG]       |        0.7 |
   COMP BUFFER AIR FLOW                   |  TP80CBA [SCFM]       |        5.8 |
   GAS FUEL ACTUATOR COMMAND              |  GF Act Cmmd [mA]     |       32.5 |
   SURGE VALVE COMMAND                    |  L567 [%]             |       99.8 |
   GUIDE VANE COMMAND                     |  GV Cmmd [mA]         |       50.0 |
   LUBE OIL HEADER TEMP                   |  Lube Oil [°F]        |      144.6 |
   T1 AIR INLET TEMP                      |  T1 [°F]              |       77.3 |
   COLD JUNCTION + COMPENSATION           |  CJ + Comp [°F]       |      292.2 |
   LUBE OIL TANK TEMP                     |  Lube Tank [°F]       |      164.6 |
   GP THRUST BRG FWD TEMP                 |  GP TB Fwd [°F]       |      184.2 |
   PT THRUST BRG AFT TEMP                 |  PT TB Aft [°F]       |      172.9 |
   ENG #1 BRG DRN TEMP                    |  #1 Bg D [°F]         |      160.8 |
   ENG #2 & #3 BRG DRN TEMP               |  #2,3 Bg D [°F]       |      169.5 |
   ENG #4 & #5 BRG DRN TEMP               |  #4,5 Bg D [°F]       |      163.5 |
   COMP DE JRNL BRG  TEMP                 |  CDEJB TMP [°F]       |      195.1 |
   CPSR INB TBT                           |  CIBTBT    [°F]       |      174.8 |
   CPSR OBD TBT                           |  COBTBT    [°F]       |      163.6 |
   COMP NDE JRNL BRG  TEMP                |  CDEJB TMP [°F]       |      178.7 |
   FUEL GAS TEMP                          |  RT586    [°F]        |       43.3 |
   SUCTION TEMP                           |  TE50X0    [°F]       |       63.2 |
   DISCHARGE TEMP                         |  TE50X1    [°F]       |       95.7 |
   ENGINE T2 TEMP 1                       |  ENG T2-1 [°F]        |      658.6 |
   ENGINE T2 TEMP 2                       |  ENG T2-2 [°F]        |      659.5 |
   ENGINE T2 TEMP 3                       |  ENG T2-3 [°F]        |      655.6 |
   ENGINE VIBRATION BRG #1 Y AXIS         |  Brg #1 Y [mils]      |      0.603 |
   ENGINE VIBRATION BRG #1 X AXIS         |  Brg #1 X [mils]      |      0.657 |
   ENGINE VIBRATION BRG #2 Y AXIS         |  Brg #2 Y [mils]      |      0.745 |
   ENGINE VIBRATION BRG #2 X AXIS         |  Brg #2 X [mils]      |      0.630 |
   ENGINE VIBRATION BRG #3 Y AXIS         |  Brg #3 Y [mils]      |      0.740 |
   ENGINE VIBRATION BRG #3 X AXIS         |  Brg #3 X [mils]      |      0.813 |
   ENGINE VIBRATION BRG #4 Y AXIS         |  Brg #4 Y [mils]      |      0.454 |
   ENGINE VIBRATION BRG #4 X AXIS         |  Brg #4 X [mils]      |      0.452 |
   ENGINE VIBRATION BRG #5 Y AXIS         |  Brg #5 Y [mils]      |      0.613 |
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|****************************************************************************|
                              FLORIDA GAS                                    |
|****************************************************************************|
|21-MAR-95  13:38:11    UNIT 1  ANALOG DATA                                  |
|****************************************************************************|
   ENGINE VIBRATION BRG #5 X AXIS    |  Brg #5 X [mils]      |       0.482 |
   HPC COMP RADIAL FWD Y AXIS        |  39CDY    [mils]      |       0.254 |
|  HPC COMP RADIAL FWD X AXIS        |  39CDX    [mils]      |       0.636 |
   HPC COMP RADIAL AFT Y AXIS        |  39CNY    [mils]      |       0.512 |
   HPC COMP RADIAL AFT X AXIS        |  39CNX    [mils]      |       0.261 |
|  HPC IBD THRUST                    |  39CAD1   [mils]      |       -16.0 |
   STATION DEWPOINT                  |  STN DEW PT [LBS]     |        5.01 |
   DISCHARGE FLOW                    |  DIS FLOW [MSCFD]     |         467 |
   FUEL FLOW                         |  FUEL FLW [MSCFH]     |       48.66 |
   CONTROL LINE SETPOINT             |  ConLinSP [psid]      |       290.1 |
   CPSR SURGE MARGIN                 |  CpsrSrgMarg [%]      |        28.4 |
   SURGE LINE BIAS                   |  SrgLnBias [psid]     |       -14.2 |
|  DEADBAND LINE SLOPE               |  KDB                  |       2.470 |
   CONTROL LINE SLOPE                |  KCL                  |       2.570 |
   SURGE LINE SLOPE                  |  KSL                  |       3.110 |
|  ENGINE POWER NOMINAL              |  E Pwr Nom [hp]       |        5130 |
   ENGINE FUEL FLOW NOMINAL MMbtuH   |  Wf N [MMbtuH]        |        45.7 |
   ENGINE PCD NOMINAL                |  PCD Nom [psig]       |       127.9 |
   ENGINE T5 NOMINAL                 |  T5 Nom [°F]          |        1372 |
|  NPT OPT                           |  NPT Opt [%]          |        85.5 |
   ENGINE POWER ACTUAL               |  E Pwr Act [hp]       |        5202 |
   ENGINE PCD ACTUAL                 |  PCD Act [psig]       |       131.2 |
|  ENGINE CONTAMINATION FACTOR       |  ECF [%]              |         2.5 |
   ENGINE FUEL FLOW ACTUAL MMbtuH    |  Wf A [MMbtuH]        |        51.0 |
   ENGINE POWER DELTA                |  E Pwr Delta [hp]     |          72 |
   ENGINE T5 DELTA                   |  T5 Delta [°F]        |          26 |
   ENGINE PCD DELTA                  |  PCD Delta [psig]     |         3.3 |
   ENGINE FUEL FLOW DELTA MMbtuH     |  Wf D [MMbtuH]        |         5.3 |
   ENGINE FUEL FLOW SCFH             |  Qf [mscfh]           |       49.70 |
|  COMPRESSOR SPEED ACTUAL           |  Cp Spd Act [rpm]     |       12106 |
   COMPRESSOR FLOW ACFM              |  Cp Flow [acfm]       |        4904 |
   COMPRESSOR ISENTROPIC HEAD        |  Cp Head [ft]         |        9195 |
|  COMPRESSOR EFFICIENCY ACTUAL      |  Cp ETA Act           |       0.802 |
   COMPRESSOR SHAFT POWER            |  Cp Sft Pwr [hp]      |        5112 | 6314
   COMPRESSOR EFFICIENCY NOMINAL     |  Cp ETA Nom           |       0.780 |
   COMPRESSOR SPEED NOMINAL          |  Cp Spd Nom [rpm]     |       12554 |
|  COMPRESSOR EFFICIENCY DELTA       |  Delta ETA            |       0.022 |
   COMPRESSOR SPEED DELTA            |  Delta Spd [rpm]      |        -448 |
   COMPRESSOR FLOW MMSCFD            |  Cp Flow [mmscfd]     |       467.3 |
|  MIN FUEL LEVEL                    |  Min Fuel [mA]        |        -2.1 |
   NGP SETPOINT                      |  NGP SP [%]           |        98.1 |
   NUMBER OF ACTIVE T5 TC's          |  No Act T5 TC's       |           6 |
|  T5 SETPOINT                       |  T5 SP [°F]           |        1400 |
   T5 THERMOCOUPLE AVERAGE           |  T5 Avg [°F]          |        1398 |
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|****************************************************************************|
                                  FLORIDA GAS                          Run266-3|
|****************************************************************************|
21-MAR-95  13:52:50    UNIT 1  ANALOG DATA                             Unit266|
|****************************************************************************|
    NGP                                  |  NGP [%]                |     96.4 |
    NPT                                  |  NPT [%]                |     86.2 |
    T5 THERMOCOUPLE 1                    |  T5 TC 1 [°F]           |     1423 |
    T5 THERMOCOUPLE 2                    |  T5 TC 2 [°F]           |     1396 |
    T5 THERMOCOUPLE 3                    |  T5 TC 3 [°F]           |     1418 |
    T5 THERMOCOUPLE 4                    |  T5 TC 4 [°F]           |     1381 |
    T5 THERMOCOUPLE 5                    |  T5 TC 5 [°F]           |     1372 |
    T5 THERMOCOUPLE 6                    |  T5 TC 6 [°F]           |     1401 |
    HPC SUCTION PRESS                    |  PT50X0 [PSIG]          |    840.3 |
    HPC DISCHARGE PRESS                  |  PT50X1 [PSIG]          |   1039.2 |
    AIR INLET DP                         |  TPD358 ["H20]          |      2.4 |
    ENGINE CPSR DISCHARGE PRESS          |  PCD [psig]             |    129.8 |
    24 VDC BATTERY VOLTAGE               |  Battery [vdc]          |     25.6 |
    LUBE OIL HEADER PRESS                |  Lube Oil [psig]        |     59.9 |
    SUCTION  FLOW                        |  FT50X0  ["H20]         |     47.1 |
    COMP DP                              |  TPD563_1 [PSID]        |    208.3 |
    ASV POSS.                            |  ZT50X4 [%]             |     94.3 |
    FUEL GAS PRESS                       |  TP586 [PSIG]           |    207.3 |
    FUEL FLOW                            |  TPD586 ["H20]          |     29.6 |
    COMP JACKING PUMP PRESS              |  TP36QJT [PSIG]         |      2.2 |
    COMP BUFFER AIR FLOW                 |  TP80CBA [SCFM]         |      5.8 |
    GAS FUEL ACTUATOR COMMAND            |  GF Act Cmmd [mA]       |     32.1 |
    SURGE VALVE COMMAND                  |  L567 [%]               |     99.9 |
    GUIDE VANE COMMAND                   |  GV Cmmd [mA]           |     50.0 |
    LUBE OIL HEADER TEMP                 |  Lube Oil [°F]          |    144.6 |
    T1 AIR INLET TEMP                    |  T1 [°F]                |     79.4 |
    COLD JUNCTION + COMPENSATION         |  CJ + Comp [°F]         |    292.7 |
    LUBE OIL TANK TEMP                   |  Lube Tank [°F]         |    164.3 |
    GP THRUST BRG FWD TEMP               |  GP TB Fwd [°F]         |    184.7 |
    PT THRUST BRG AFT TEMP               |  PT TB Aft [°F]         |    172.7 |
    ENG #1 BRG DRN TEMP                  |  #1 Bg D [°F]           |    160.6 |
    ENG #2 & #3 BRG DRN TEMP             |  #2,3 Bg D [°F]         |    169.2 |
    ENG #4 & #5 BRG DRN TEMP             |  #4,5 Bg D [°F]         |    163.3 |
    COMP DE JRNL BRG  TEMP               |  CDEJB TMP [°F]         |    195.5 |
    CPSR INB TBT                         |  CIBTBT    [°F]         |    174.8 |
    CPSR OBD TBT                         |  COBTBT    [°F]         |    163.5 |
    COMP NDE JRNL BRG  TEMP              |  CDEJB TMP [°F]         |    178.5 |
    FUEL GAS TEMP                        |  RT586     [°F]         |     43.4 |
    SUCTION TEMP                         |  TE50X0    [°F]         |     63.2 |
    DISCHARGE TEMP                       |  TE50X1    [°F]         |     95.5 |
    ENGINE T2 TEMP 1                     |  ENG T2-1 [°F]          |    660.1 |
    ENGINE T2 TEMP 2                     |  ENG T2-2 [°F]          |    661.4 |
    ENGINE T2 TEMP 3                     |  ENG T2-3 [°F]          |    657.6 |
    ENGINE VIBRATION BRG #1 Y AXIS       |  Brg #1 Y [mils]        |    0.613 |
    ENGINE VIBRATION BRG #1 X AXIS       |  Brg #1 X [mils]        |    0.654 |
    ENGINE VIBRATION BRG #2 Y AXIS       |  Brg #2 Y [mils]        |    0.735 |
    ENGINE VIBRATION BRG #2 X AXIS       |  Brg #2 X [mils]        |    0.647 |
    ENGINE VIBRATION BRG #3 Y AXIS       |  Brg #3 Y [mils]        |    0.740 |
    ENGINE VIBRATION BRG #3 X AXIS       |  Brg #3 X [mils]        |    0.813 |
    ENGINE VIBRATION BRG #4 Y AXIS       |  Brg #4 Y [mils]        |    0.441 |
    ENGINE VIBRATION BRG #4 X AXIS       |  Brg #4 X [mils]        |    0.431 |
    ENGINE VIBRATION BRG #5 Y AXIS       |  Brg #5 Y [mils]        |    0.589 |
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|**************************************************************************|
                                FLORIDA GAS                                 |
|**************************************************************************|
|21-MAR-95  13:52:51    UNIT 1  ANALOG DATA                                 |
|**************************************************************************|
|   ENGINE VIBRATION BRG #5 X AXIS      |  Brg #5 X [mils]        |     0.452 |
|   HPC COMP RADIAL FWD Y AXIS          |  39CDY    [mils]        |     0.247 |
|   HPC COMP RADIAL FWD X AXIS          |  39CDX    [mils]        |     0.647 |
|   HPC COMP RADIAL AFT Y AXIS          |  39CNY    [mils]        |     0.513 |
|   HPC COMP RADIAL AFT X AXIS          |  39CNX    [mils]        |     0.265 |
|   HPC IBD THRUST                      |  39CAD1   [mils]        |     -16.0 |
|   STATION DEWPOINT                    |  STN DEW PT [LBS]       |      4.81 |
|   DISCHARGE FLOW                      |  DIS FLOW [MSCFD]       |       467 |
|   FUEL FLOW                           |  FUEL FLW [MSCFH]       |     48.52 |
|   CONTROL LINE SETPOINT               |  ConLinSP [psid]        |     288.6 |
|   CPSR SURGE MARGIN                   |  CpsrSrgMarg [%]        |      28.3 |
|   SURGE LINE BIAS                     |  SrgLnBias [psid]       |     -14.2 |
|   DEADBAND LINE SLOPE                 |  KDB                    |     2.470 |
|   CONTROL LINE SLOPE                  |  KCL                    |     2.570 |
|   SURGE LINE SLOPE                    |  KSL                    |     3.110 |
|   ENGINE POWER NOMINAL                |  E Pwr Nom [hp]         |      5043 |
|   ENGINE FUEL FLOW NOMINAL MMbtuH     |  Wf N [MMbtuH]          |      45.2 |
|   ENGINE PCD NOMINAL                  |  PCD Nom [psig]         |     126.6 |
|   ENGINE T5 NOMINAL                   |  T5 Nom [°F]            |      1372 |
|   NPT OPT                             |  NPT Opt [%]            |      85.2 |
|   ENGINE POWER ACTUAL                 |  E Pwr Act [hp]         |      5160 |
|   ENGINE PCD ACTUAL                   |  PCD Act [psig]         |     130.5 |
|   ENGINE CONTAMINATION FACTOR         |  ECF [%]                |       3.0 |
|   ENGINE FUEL FLOW ACTUAL MMbtuH      |  Wf A [MMbtuH]          |      50.8 |
|   ENGINE POWER DELTA                  |  E Pwr Delta [hp]       |       117 |
|   ENGINE T5 DELTA                     |  T5 Delta [°F]          |        27 |
|   ENGINE PCD DELTA                    |  PCD Delta [psig]       |       3.9 |
|   ENGINE FUEL FLOW DELTA MMbtuH       |  Wf D [MMbtuH]          |       5.6 |
|   ENGINE FUEL FLOW SCFH               |  Qf [mscfh]             |     49.50 |
|   COMPRESSOR SPEED ACTUAL             |  Cp Spd Act [rpm]       |     12065 |
|   COMPRESSOR FLOW ACFM                |  Cp Flow [acfm]         |      4888 |
|   COMPRESSOR ISENTROPIC HEAD          |  Cp Head [ft]           |      8967 |
|   COMPRESSOR EFFICIENCY ACTUAL        |  Cp ETA Act             |     0.787 |
|   COMPRESSOR SHAFT POWER              |  Cp Sft Pwr [hp]        |      5073 | 6288
|   COMPRESSOR EFFICIENCY NOMINAL       |  Cp ETA Nom             |     0.780 |
|   COMPRESSOR SPEED NOMINAL            |  Cp Spd Nom [rpm]       |     12413 |
|   COMPRESSOR EFFICIENCY DELTA         |  Delta ETA              |     0.007 |
|   COMPRESSOR SPEED DELTA              |  Delta Spd [rpm]        |      -348 |
|   COMPRESSOR FLOW MMSCFD              |  Cp Flow [mmscfd]       |     466.6 |
|   MIN FUEL LEVEL                      |  Min Fuel [mA]          |      -2.1 |
|   NGP SETPOINT                        |  NGP SP [%]             |      98.1 |
|   NUMBER OF ACTIVE T5 TC's            |  No Act T5 TC's         |         6 |
|   T5 SETPOINT                         |  T5 SP [°F]             |      1400 |
|   T5 THERMOCOUPLE AVERAGE             |  T5 Avg [°F]            |      1399 |
|**************************************************************************|
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|****************************************************************************|
|                                FLORIDA GAS                        Run26C-3 |
|****************************************************************************|
21-MAR-95  14:05:56     UNIT 1  ANALOG DATA                         Unit2601 |
|****************************************************************************|
     NGP                                    | NGP [%]               |      96.5 |
     NPT                                    | NPT [%]               |      86.4 |
     T5 THERMOCOUPLE 1                      | T5 TC 1 [°F]          |      1423 |
     T5 THERMOCOUPLE 2                      | T5 TC 2 [°F]          |      1398 |
     T5 THERMOCOUPLE 3                      | T5 TC 3 [°F]          |      1422 |
     T5 THERMOCOUPLE 4                      | T5 TC 4 [°F]          |      1381 |
     T5 THERMOCOUPLE 5                      | T5 TC 5 [°F]          |      1374 |
     T5 THERMOCOUPLE 6                      | T5 TC 6 [°F]          |      1394 |
     HPC SUCTION PRESS                      | PT50X0 [PSIG]         |     833.0 |
     HPC DISCHARGE PRESS                    | PT50X1 [PSIG]         |    1029.9 |
     AIR INLET DP                           | TPD358 ["H20]         |       2.3 |
     ENGINE CPSR DISCHARGE PRESS            | PCD [psig]            |     130.4 |
     24 VDC BATTERY VOLTAGE                 | Battery [vdc]         |      25.5 |
     LUBE OIL HEADER PRESS                  | Lube Oil [psig]       |      60.1 |
     SUCTION  FLOW                          | FT50X0  ["H20]        |      47.3 |
     COMP DP                                | TPD563_1 [PSID]       |     208.8 |
     ASV POSS.                              | ZT50X4 [%]            |      94.3 |
     FUEL GAS PRESS                         | TP586 [PSIG]          |     207.3 |
     FUEL FLOW                              | TPD586 ["H20]         |      29.8 |
     COMP JACKING PUMP PRESS                | TP36QJT [PSIG]        |       1.5 |
     COMP BUFFER AIR FLOW                   | TP80CBA [SCFM]        |       5.8 |
     GAS FUEL ACTUATOR COMMAND              | GF Act Cmmd [mA]      |      32.2 |
     SURGE VALVE COMMAND                    | L567 [%]              |      99.8 |
     GUIDE VANE COMMAND                     | GV Cmmd [mA]          |      50.0 |
     LUBE OIL HEADER TEMP                   | Lube Oil [°F]         |     144.4 |
     T1 AIR INLET TEMP                      | T1 [°F]               |      78.1 |
     COLD JUNCTION + COMPENSATION           | CJ + Comp [°F]        |     293.0 |
     LUBE OIL TANK TEMP                     | Lube Tank [°F]        |     164.3 |
     GP THRUST BRG FWD TEMP                 | GP TB Fwd [°F]        |     186.3 |
     PT THRUST BRG AFT TEMP                 | PT TB Aft [°F]        |     172.6 |
     ENG #1 BRG DRN TEMP                    | #1 Bg D [°F]          |     160.5 |
     ENG #2 & #3 BRG DRN TEMP               | #2,3 Bg D [°F]        |     169.2 |
     ENG #4 & #5 BRG DRN TEMP               | #4,5 Bg D [°F]        |     163.3 |
     COMP DE JRNL BRG  TEMP                 | CDEJB TMP [°F]        |     194.8 |
     CPSR INB TBT                           | CIBTBT    [°F]        |     174.5 |
     CPSR OBD TBT                           | COBTBT    [°F]        |     163.5 |
     COMP NDE JRNL BRG  TEMP                | CDEJB TMP [°F]        |     178.4 |
     FUEL GAS TEMP                          | RT586    [°F]         |      43.1 |
     SUCTION TEMP                           | TE50X0    [°F]        |      63.2 |
     DISCHARGE TEMP                         | TE50X1    [°F]        |      95.5 |
     ENGINE T2 TEMP 1                       | ENG T2-1 [°F]         |     658.7 |
     ENGINE T2 TEMP 2                       | ENG T2-2 [°F]         |     660.4 |
     ENGINE T2 TEMP 3                       | ENG T2-3 [°F]         |     656.1 |
     ENGINE VIBRATION BRG #1 Y AXIS         | Brg #1 Y [mils]       |     0.608 |
     ENGINE VIBRATION BRG #1 X AXIS         | Brg #1 X [mils]       |     0.672 |
     ENGINE VIBRATION BRG #2 Y AXIS         | Brg #2 Y [mils]       |     0.745 |
     ENGINE VIBRATION BRG #2 X AXIS         | Brg #2 X [mils]       |     0.654 |
     ENGINE VIBRATION BRG #3 Y AXIS         | Brg #3 Y [mils]       |     0.759 |
     ENGINE VIBRATION BRG #3 X AXIS         | Brg #3 X [mils]       |     0.825 |
     ENGINE VIBRATION BRG #4 Y AXIS         | Brg #4 Y [mils]       |     0.438 |
     ENGINE VIBRATION BRG #4 X AXIS         | Brg #4 X [mils]       |     0.458 |
     ENGINE VIBRATION BRG #5 Y AXIS         | Brg #5 Y [mils]       |     0.571 |
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|*****************************************************************************|
|                                 FLORIDA GAS                                  |
|******************************************************************************|
|21-MAR-95  14:05:57    UNIT 1  ANALOG DATA                                    |
|******************************************************************************|
|   ENGINE VIBRATION BRG #5 X AXIS       |  Brg #5 X [mils]      |       0.443 |
|   HPC COMP RADIAL FWD Y AXIS           |  39CDY    [mils]      |       0.253 |
|   HPC COMP RADIAL FWD X AXIS           |  39CDX    [mils]      |       0.646 |
|   HPC COMP RADIAL AFT Y AXIS           |  39CNY    [mils]      |       0.541 |
|   HPC COMP RADIAL AFT X AXIS           |  39CNX    [mils]      |       0.266 |
|   HPC IBD THRUST                       |  39CAD1   [mils]      |       -16.0 |
|   STATION DEWPOINT                     |  STN DEW PT [LBS]     |        4.87 |
|   DISCHARGE FLOW                       |  DIS FLOW [MSCFD]     |         465 |
|   FUEL FLOW                            |  FUEL FLW [MSCFH]     |       48.69 |
|   CONTROL LINE SETPOINT                |  ConLinSP [psid]      |       289.3 |
|   CPSR SURGE MARGIN                    |  CpsrSrgMarg [%]      |        28.3 |
|   SURGE LINE BIAS                      |  SrgLnBias [psid]     |       -14.2 |
|   DEADBAND LINE SLOPE                  |  KDB                  |       2.470 |
|   CONTROL LINE SLOPE                   |  KCL                  |       2.570 |
|   SURGE LINE SLOPE                     |  KSL                  |       3.110 |
|   ENGINE POWER NOMINAL                 |  E Pwr Nom [hp]       |        5096 |
|   ENGINE FUEL FLOW NOMINAL MMbtuH      |  Wf N [MMbtuH]        |        45.5 |
|   ENGINE PCD NOMINAL                   |  PCD Nom [psig]       |       127.4 |
|   ENGINE T5 NOMINAL                    |  T5 Nom [°F]          |        1372 |
|   NPT OPT                              |  NPT Opt [%]          |        85.3 |
|   ENGINE POWER ACTUAL                  |  E Pwr Act [hp]       |        5144 |
|   ENGINE PCD ACTUAL                    |  PCD Act [psig]       |       131.0 |
|   ENGINE CONTAMINATION FACTOR          |  ECF [%]              |         2.8 |
|   ENGINE FUEL FLOW ACTUAL MMbtuH       |  Wf A [MMbtuH]        |        51.0 |
|   ENGINE POWER DELTA                   |  E Pwr Delta [hp]     |          48 |
|   ENGINE T5 DELTA                      |  T5 Delta [°F]        |          27 |
|   ENGINE PCD DELTA                     |  PCD Delta [psig]     |         3.6 |
|   ENGINE FUEL FLOW DELTA MMbtuH        |  Wf D [MMbtuH]        |         5.5 |
|   ENGINE FUEL FLOW SCFH                |  Qf [mscfh]           |       49.73 |
|   COMPRESSOR SPEED ACTUAL              |  Cp Spd Act [rpm]     |       12094 |
|   COMPRESSOR FLOW ACFM                 |  Cp Flow [acfm]       |        4920 |
|   COMPRESSOR ISENTROPIC HEAD           |  Cp Head [ft]         |        9381 |
|   COMPRESSOR EFFICIENCY ACTUAL         |  Cp ETA Act           |       0.823 |
|   COMPRESSOR SHAFT POWER               |  Cp Sft Pwr [hp]      |        5060 | 6253
|   COMPRESSOR EFFICIENCY NOMINAL        |  Cp ETA Nom           |       0.780 |
|   COMPRESSOR SPEED NOMINAL             |  Cp Spd Nom [rpm]     |       12671 |
|   COMPRESSOR EFFICIENCY DELTA          |  Delta ETA            |       0.043 |
|   COMPRESSOR SPEED DELTA               |  Delta Spd [rpm]      |        -577 |
|   COMPRESSOR FLOW MMSCFD               |  Cp Flow [mmscfd]     |      465.14 |
|   MIN FUEL LEVEL                       |  Min Fuel [mA]        |        -2.1 |
|   NGP SETPOINT                         |  NGP SP [%]           |        98.1 |
|   NUMBER OF ACTIVE T5 TC's             |  No Act T5 TC's       |           6 |
|   T5 SETPOINT                          |  T5 SP [°F]           |        1400 |
|   T5 THERMOCOUPLE AVERAGE              |  T5 Avg [°F]          |        1399 |
|******************************************************************************|
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APPENDIX E:
Quality Assurance Activities

Quality Assurance Worksheet: Florida Gas Transmission Station No. 26

	CERTIFIED GAS INPUT		INITIAL CALIBRATION & LINEARITY CHECK		TEST RUN 26C-1	ZERO and SPAN CALIBRATION CHECK		TEST RUN 26C-2	ZERO and SPAN CALIBRATION CHECK		TEST RUN 26C-3	ZERO and SPAN CALIBRATION CHECK	
	Concentration (% or ppm)	Target (% Chart)	Initial (% Chart)	Difference (% Chart)		Final (% Chart)	Drift (% Chart)		Final (% Chart)	Drift (% Chart)		Final (% Chart)	Drift (% Chart)
NOx					Avg. ppm			Avg. ppm			Avg. ppm		
zero	0.00	2.0	2.0	0.0	24.1	5.4	3.4	22.5	3.6	1.6	23.5	2.4	0.4
low	8.95	19.9	20.2	0.3	% Chart			% Chart			% Chart		
mid	14.17	30.3	30.4	0.1	50.2			47.0			49.0		
high	45.10	92.2	90.7	-1.5		93.0	0.8		93.8	1.6		92.0	-0.2
full scale	50.0				50.0			50.0			50.0		
CO					Avg. ppm			Avg. ppm			Avg. ppm		
zero	0.00	5.0	5.2	0.2	6.7	5.2	0.2	5.6	5.2	0.2	4.8	5.2	0.2
low	7.99	21.0	20.7	-0.3	% Chart			% Chart			% Chart		
mid	15.11	35.2	36.0	0.8	18.4			16.2			14.6		
high	41.14	87.3	88.0	0.7		87.3	0.0		87.3	0.0		87.2	-0.1
full scale	50.0				50.0			50.0			50.0		
O2					Avg.%			Avg.%			Avg.%		
zero	0.00	10.0	10.0	0.0	15.82	10.2	0.2	15.88	10.2	0.2	15.88	10.2	0.2
low	4.03	26.1	26.6	0.5	% Chart			% Chart			% Chart		
mid	8.00	42.0	42.0	0.0	73.3			73.5			73.5		
high	18.00	82.0	81.1	-0.9		82.0	0.0		81.8	-0.2		82.0	0.0
full scale	25.00				25.0			25.0			25.0		
CO2					Avg.%			Avg.%			Avg.%		
zero	0.00	2.0	2.0	0.0	3.00	1.0	-1.0	2.85	1.3	-0.7	2.97	0.6	-1.4
low	4.00	28.7	27.3	-1.4	% Chart	28.7	0.0	% Chart	27.9	-0.8	% Chart	29.9	1.2
mid	8.00	55.3	53.8	-1.5	22.0			21.0			21.8		
high	12.00	82.0	82.0	0.0									
full scale	15.0				15.0			15.0			15.0		
THC A					Avg. ppm			Avg. ppm			Avg. ppm		
zero	0.00	5.0	5.0	0.0	0.95	7.0	2.0	0.30	5.2	0.2	0.13	5.8	0.8
low†	8.52	22.0	21.8	-0.2	% Chart			% Chart			% Chart		
mid††	15.61	36.2	37.2	1.0	6.9			5.6			5.3		
high	39.93	84.9	84.9	0.0		86.9	2.0		85.2	0.3		85.1	0.3
full scale	50.0				50			50			50		

Method 25a Calibration Error Test requires less than 5% of Cal Gas

†low: 5% is 0.85 percent of chart (scaled to high lev SOURCE: Unit 2601, Solar Taurus 60S Unit 2601, Solar Taurus 60S Unit 2601, Solar Taurus 60S

††mid: 5% is 1.56 percent of chart (scaled to high le DATE: 21-Mar-95 21-Mar-95 21-Mar-95

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

Instrumental Analysis
Quality Assurance Data

Date : March 21, 1995

Plant: FGT's Compressor Station No. 26

Technicians: CDC, LJB

NOx Analyzer: NO2 to NO Converter Efficiency Test

	NOx Concentration (ppm)	% Decrease from Initial Concentration	NO Concentration (ppm)
Initial Concentration	34.5	0.0	34.5
10 minute Concentration	34.3	0.4	33.8
20 minute Concentration	34.5	0.0	33.3
30 minute Concentration	34.5	0.0	32.6
Full Scale	50		

Sample System Bias Check

Parameter	Calibration Gas Concentration (ppm or %)	Full Scale Span (ppm or %)	Direct Calibration Response (ppm or %)	Sample System Response (ppm or %)	Sample System Bias (% of Span)
NOx, pre 26C-1	45.1	50	45.15	45.20	0.1
NOx, pre 26C-1	0.0	50	0.20	0.40	0.4
O2, pre 26C-1	18.00	25.00	18.00	17.85	-0.6
O2, pre 26C-1	0.00	25.00	0.00	0.00	0
NOx, post 26C-3	45.1	50	45.00	44.35	-1.3
NOx, post 26C-3	0	50	0.40	0.60	0.4
O2, post 26C-3	18.00	25.00	18.00	17.83	-0.68
O2, post 26C-3	0.00	25.00	0.05	0.03	-0.1

Sample System Leak Check

Date	Run	Initial Vacuum	Final Vacuum
3/21/95	pre 26C-1	23.5 "Hg	23.4 "Hg
3/21/95	post 26C-3	24.6 "Hg	24.5 "Hg

Quality Assurance Report
EPA Method 20: NOx and O2 Response Time Tests

Date 21-Mar-95

Technician: LJB

As Applicable per the requirements of EPA Methods 3a,10, and 20

Cubix Mobile Unit: Trailer #10

Test Instrumentation

Analyzer	Make	Model	Serial Number	Detection Method
NO and NOx Analyzer	Thermo Environmental	10AR	10A/R-51539-288	Photodetection (photomultiplier) of a chemiluminescent reaction of nitric oxide and ozone.
O2 Analyzer	Teledyne	320 AR	149968	Current generating micro-fuel cell (O2 consumption)

Test Conditions

Chart Speed	30	cm/minute
Sample Line Vacuum	9	"Hg
Sample Manifold Pressure	5	psi
Analyzer Flow Meter Setting	7	mm
Gas Standard Pressure	5	psi

Response Time Test Data	**Response Time (seconds to 95% of stable value)**	
	130ft Sample Line w/ 40' Heat Trace	
	NOx	**O2**
Ambient Gas Concentration	0.35	20.94
Stack Gas Concentration	22.50	15.98
Analyzer Full Scale Range	50	25
Upscale Response		
Test # 1	42	48
Test # 2	41	56
Test # 3	40	56
Average Upscale Response	41.0	53.3
Downscale Response		
Test # 1	42	61
Test # 2	42	62
Test # 3	42	64
Average Downscale Response	42.0	62.3

Minimum System
Response Time (seconds): **62.3**

Minimum Sampling Time
Each Traverse Point (seconds): **122.3**

CONTINOUS EMISSION ANALYZER INTERFERENCE RESPONSE TESTS

Date: March 17, 1995
Technicians: LJB, CDC

Analyzer Type: Thermo Environmental Instruments, Inc.
Analyzer Model: Model 10AR Chemiluminescent NO/NOx Analyzer
Serial Number: 10A/R-51539-288
Analyzer Test Range: 0-25 ppmv

Test Gas		Analyzer Response		Response Ratio
Gas Type	Concentration	Concentration	% of Range	▨
CO/Methane	403.8/397.9	0.1	0.4%	0.0002/0.0003
Propane	243	0.1	0.4%	0.0004
SO_2	4048	0.2	0.8%	0.00005
CO_2/O_2	8%/8%	<0.1	<0.4%	<0.0125/<0.0125
Air	dry, instrument	<0.1	<0.4%	not applicable
Nitrogen	pre-purified	0.0	not applicable	zero gas

ppmv/ppmv

CONTINOUS EMISSION ANALYZER
INTERFERENCE RESPONSE TESTS

Date: March 17, 1995
Technicians: LJB, CDC

Analyzer Type: Thermo Environmental Instruments, Inc.
Analyzer Model: Model 48 GFC CO Analyzer
Serial Number: 48-51488-288
Analyzer Test Range: 0-50 ppmv

Test Gas		Analyzer Response		Response Ratio	
Gas Type	Concentration	Concentration	% of Range		
Air	UHC, CO free	0.0	not applicable	zero gas	
CO_2/O_2	4.0%/18.0%	-0.2	-0.4%	-0.05/-0.011	ppmv/%
CO_2/O_2	8.0%/8.0%	-0.4	-0.8%	-0.05/-0.05	
CO_2/O_2	12%/4.03%	-0.6	-1.2%	-0.05/-0.15	
Air	Instrument, dry	0.4	0.8%	CO impurity	
NO_x	3301 ppmv	0.4	0.8%	0.0001	ppmv/ppmv
SO_2	4048 ppmv	-0.3	-0.6%	-0.0001	
Propane	243 ppmv	0.4	0.8%	0.0016	

CONTINOUS EMISSION ANALYZER INTERFERENCE RESPONSE TESTS

Date: March 17, 1995
Technicians: LJB, CDC

Analyzer Type: Teledyne Brown Engineering
Analyzer Model: Model 320 AR Micro Fuel Cell O_2 Analyzer
Serial Number: 149968
Analyzer Test Range: 0-25%

Test Gas		Analyzer Response		Response Ratio
Gas Type	Concentration	Concentration	% of Range	▨
Nitrogen	Pre-purified	0.0	not applicable	zero gas
NO_x	3301 ppmv	<0.025%	<0.1%	$<7.6\times10^{-6}$
SO_2	4048 ppmv	<0.025%	<0.1%	$<6.2\times10^{-6}$
CO/C1	403.8/397.9	<0.025%	<0.1%	<0.0001/<0.0001
Propane	243 ppmv	<0.025%	<0.1%	<0.0001

%/ppmv

APPENDIX F:
Calibration Certifications

Scott Specialty Gases, Inc.

Shipped From:
3714 LAPAS DRIVE
HOUSTON TX 77023
Phone: 713-644-4820 Fax: 713-644-0244

CERTIFICATE OF ANALYSIS

CUBIX CORPORATION
ACCOUNTS PAYABLE
9225 LOCKHART HWY

AUSTIN TX 78747

PROJECT #: 04-38157-003
PO#: 94712
ITEM #: 0402C3000712AL
DATE: 1/04/95

CYLINDER #: AAL9367
ANALYTICAL ACCURACY: +-2%
PRODUCT EXPIRATION: 1/04/96

BLEND TYPE : ACUBLEND MASTER GAS

COMPONENT	REQUESTED GAS CONC MOLES	ANALYSIS (MOLES)
CARBON DIOXIDE	4. %	4.00 %
OXYGEN	18. %	18.00 %
NITROGEN	BALANCE	BALANCE

2000 PSI

THIS PRODUCT IS TRACEABLE TO DOCUMENTATION BY BOTH THE NUMBERS IDENTIFIED ON THIS

ALL PRODUCTION & ANALYTICAL PROJECT & CYLINDER SERIAL CERTIFICATE OF ANALYSIS.

ANALYST: ____________________

Scott Specialty Gases, Inc.

Shipped From:
3714 LAPAS DRIVE
HOUSTON TX 77023
Phone: 713-644-4820 Fax: 713-644-0244

CERTIFICATE OF ANALYSIS

CUBIX CORPORATION
ACCOUNTS PAYABLE
9225 LOCKHART HWY

AUSTIN TX 78747

PROJECT #: 04-38157-001
PO#: 94712
ITEM #: 0402C3000702AL
DATE: 1/04/95

CYLINDER #: ALM019428

ANALYTICAL ACCURACY: +-2%
PRODUCT EXPIRATION: 1/04/96

BLEND TYPE : ACUBLEND MASTER GAS

COMPONENT	REQUESTED GAS CONC MOLES		ANALYSIS (MOLES)	
CARBON DIOXIDE	8.	%	8.00	%
OXYGEN	8.	%	8.00	%
NITROGEN		BALANCE		BALANCE

2000 PSI

THIS PRODUCT IS TRACEABLE TO ALL PRODUCTION & ANALYTICAL DOCUMENTATION BY BOTH THE PROJECT & CYLINDER SERIAL NUMBERS IDENTIFIED ON THIS CERTIFICATE OF ANALYSIS.

ANALYST: ____________

PLUMSTEADVILLE, PENNSYLVANIA / TROY, MICHIGAN / HOUSTON, TEXAS / DURHAM, NORTH CAROLINA
SOUTH PLAINFIELD, NEW JERSEY / FREMONT, CALIFORNIA / WAKEFIELD, MASSACHUSETTS / LONGMONT, COLORADO
BATON ROUGE, LOUISIANA

Scott Specialty Gases, Inc.

Shipped From:
3714 LAPAS DRIVE
HOUSTON TX 77023
Phone: 713-644-4820 Fax: 713-644-0244

CERTIFICATE OF ANALYSIS

CUBIX CORPORATION
ACCOUNTS PAYABLE
9225 LOCKHART HWY

AUSTIN TX 78747

PROJECT #: 04-38157-002
PO#: 94712
ITEM #: 0402C3000702AL
DATE: 1/04/95

CYLINDER #: AAL7393
ANALYTICAL ACCURACY: +-2%
PRODUCT EXPIRATION: 1/04/96

BLEND TYPE : ACUBLEND MASTER GAS

COMPONENT	REQUESTED GAS CONC MOLES	ANALYSIS (MOLES)
CARBON DIOXIDE	12. %	12.00 %
OXYGEN	4. %	4.03 %
NITROGEN	BALANCE	BALANCE

2000 PSI

THIS PRODUCT IS TRACEABLE TO
DOCUMENTATION BY BOTH THE
NUMBERS IDENTIFIED ON THIS

ALL PRODUCTION & ANALYTICAL
PROJECT & CYLINDER SERIAL
CERTIFICATE OF ANALYSIS.

ANALYST: ____________________

Best Available Copy

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
CUBIX CORP
2106 NW 67TH PLACE
SUITE 7 ATTN RECEIVING
GAINESVILLE, FL 32653

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 94712 (3RD PTY)
Scott Project # : 574106

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM050595
Certificate Date : 12/21/94
Expiration Date : 6/21/95
Cylinder Pressure + : 1900 psig
Previous Certificate Date : None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Carbon Monoxide	7.99 PPM	±1% NIST Directly Traceable
Methane	8.52 ppm	±1% NIST Directly Traceable

Balance Gas: Air

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM	12/12/96	ALM022470	10.08ppm PPM Carbon Monoxide In Nitro
SRM 2751	4/7/96	SX20356	97.00 ppm Methane in Air

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Carle/AGC 400 Series	12/21/94	Gas Chromatography
Methane : Beckman/400/1002059	12/17/94	Flame Ionization Detector

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Carbon Monoxide	Date: 12/15/94 Response Units: mv Z1=0.00 R1=53.00 T1=42.00 R2=53.00 Z2=0.00 T2=42.00 Z3=0.00 T3=42.00 R3=53.00 Avg. Conc. of Cust. Cyl. 7.99 PPM	Date: 12/21/94 Response Units: mv Z1=0.00 R1=53.00 T1=42.00 R2=53.00 Z2=0.00 T2=42.00 Z3=0.00 T3=42.00 R3=53.00 Avg. Conc. of Cust. Cyl: 7.99 PPM	Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=1.00000 NTRM Constants: A=0.007289289 B=0.190051200 C=0.000000000 D=0.000000000 E=0.000000000
Methane	Date: 12/7/94 Response Units: mv Z1=0.00 R1=130.00 T1=11.50 R2=130.00 Z2=0.00 T2=11.50 Z3=0.00 T3=11.50 R3=130.00 Avg. Conc. of Cust. Cyl. 8.52 ppm		Concentration=A+Bx+Cx^2+Dx^3+Ex^4 r=1.00000 SRM 2751 Constants: A=-0.070954000 B=0.746700000 C=0.000000000 D=0.000000000 E=0.000000000

Special Notes

Mail

Don Eichler Jr
Analyst

MISP/P-1

Best Available Copy

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer CUBIX CORP 2106 NW 67TH PLACE SUITE 7 ATTN RECEIVING GAINESVILLE, FL 32653	**Assay Laboratory** Scott Specialty Gases, Inc 1290 Combermere Troy, MI 48083	**Purchase Order :** **Scott Project # :**	94712 (3RD PTY) 574106

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM050922 **Certificate Date :** 12/9/94 **Expiration Date :** 12/9/97

Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	**Certified Concentration**	**Analytical Uncertainty***
Methane	**15.61 ppm**	**±1% NIST Directly Traceable**
Carbon Monoxide	**15.11 ppm**	**±1% NIST Directly Traceable**

Balance Gas: Air

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	**Expiration Date**	**Cylinder Number**	**Concentration**
SRM 2751	4/7/96	SX20356	97.00 ppm Methane in Air
NTRM 1679	8/11/96	ALM037782	97.10 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	**Last Date Calibrated**	**Analytical Principle**
Methane : Beckman/400/1002059	11/19/94	Flame Ionization Detector
CO:Horiba/OPE-135/565607092	11/11/94	Non-Dispersive Infared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	**First Triad Analysis**	**Second Triad Analysis**	**Calibration Curve**
Methane	Date: 12/2/94 Response Units: mv Z1=0.00 R1=130.00 T1=21.00 R2=130.00 Z2=0.00 T2=21.00 Z3=0.00 T3=21.00 R3=130.00 Avg. Conc. of Cust. Cyl. 15.61 ppm		$Concentration=A+Bx+Cx^2+Dx^3+Ex^4$ r=1.00000 SRM 2751 Constants: A=-0.070954000 B=0.746700000 C=0.000000000 D=0.000000000 E=0.000000000
Carbon Monoxide	Date: 12/2/94 Response Units: mv Z1=0.00 R1=80.00 T1=12.60 R2=80.00 Z2=0.00 T2=12.60 Z3=0.00 T3=12.50 R3=80.00 Avg. Conc. of Cust. Cyl. 15.03 ppm	Date: 12/9/94 Response Units: mv Z1=0.00 R1=80.00 T1=12.70 R2=80.00 Z2=0.00 T2=12.70 Z3=0.00 T3=12.70 R3=80.00 Avg. Conc. of Cust. Cyl: 15.19 ppm	$Concentration=A+Bx+Cx^2+Dx^3+Ex^4$ r=1.00000 NTRM 1679 Constants: A=0.059415000 B=1.202500000 C=-0.001100400 D=0.000015397 E=0.000000000

Special Notes

Mail

Don Eichler Jr
Analyst

PROTOCOL

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Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
CUBIX CORP
2106 NW 67TH PLACE
SUITE 7 ATTN RECEIVING
GAINESVILLE, FL 32653

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 94712 (3RD PTY)
Scott Project # : 574106

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM050678 **Certificate Date :** 12/9/94 **Expiration Date :** 12/9/97
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Methane	39.93 ppm	±1% NIST Directly Traceable
Carbon Monoxide	41.14 ppm	±1% NIST Directly Traceable

Balance Gas: Air

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
SRM 2751	4/7/96	SX20356	97.00 ppm Methane in Air
NTRM 1679	8/11/96	ALM037782	97.10 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Methane : Beckman/400/1002059	11/19/94	Flame Ionization Detector
CO:Horiba/OPE-135/565607092	11/11/94	Non-Dispersive Infared

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Methane	Date: 12/2/94 Response Units: mv Z1=0.00 R1=130.00 T1=53.60 R2=130.00 Z2=0.00 T2=53.50 Z3=0.00 T3=53.60 R3=130.00 Avg. Conc. of Cust. Cyl. 39.93 ppm		Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$ r=1.00000 SRM 2751 Constants: A=-0.070954000 B=0.746700000 C=0.000000000 D=0.000000000 E=0.000000000
Carbon Monoxide	Date: 12/2/94 Response Units: mv Z1=0.00 R1=80.00 T1=34.80 R2=80.00 Z2=0.00 T2=34.80 Z3=0.00 T3=34.80 R3=80.00 Avg. Conc. of Cust. Cyl. 41.22 ppm	Date: 12/9/94 Response Units: mv Z1=0.00 R1=80.00 T1=34.80 R2=80.00 Z2=0.00 T2=34.60 Z3=0.00 T3=34.60 R3=80.00 Avg. Conc. of Cust. Cyl: 41.07 ppm	Concentration=$A+Bx+Cx^2+Dx^3+Ex^4$ r=1.00000 NTRM 1679 Constants: A=0.059415000 B=1.202500000 C=-0.001100400 D=0.000015397 E=0.000000000

Special Notes

Mail

Analyst

Best Available Copy

Scott Specialty Gases, Inc.

1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
CUBIX CORP
2106 NW 67TH PLACE
SUITE 7 ATTN RECEIVING
GAINESVILLE, FL 32653

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 94712 (3RD PTY)
Scott Project # : 574106

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : ALM030457
Certificate Date : 12/13/94
Expiration Date : 12/13/96
Cylinder Pressure + : 1900 psig
Previous Certificate Date : None

ANALYZED CYLINDER

Components	**Certified Concentration**	**Analytical Uncertainty***
Nitric Oxide	**8.63 ppm**	**±1% NIST Directly Traceable**
Total Oxides of Nitrogen	**8.95 ppm**	**Reference Value Only**

Balance Gas: **Nitrogen**

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	**Expiration Date**	**Cylinder Number**	**Concentration**
NTRM 0025	11/21/96	ALM-042671	24.39 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	**Last Date Calibrated**	**Analytical Principle**
NO:Horiba/OPE-235/483814	11/29/94	Chemiluminescence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	**First Triad Analysis**	**Second Triad Analysis**	**Calibration Curve**
Nitric Oxide	Date: 12/5/94 Response Units: mv Z1=0.00 R1=86.00 T1=30.60 R2=86.00 Z2=0.00 T2=30.60 Z3=0.00 T3=30.40 R3=86.00 Avg. Conc. of Cust. Cyl. 8.65 ppm	Date: 12/13/94 Response Units: mv Z1=0.00 R1=86.00 T1=30.40 R2=86.00 Z2=0.00 T2=30.40 Z3=0.00 T3=30.40 R3=86.00 Avg. Conc. of Cust. Cyl: 8.61 ppm	$\text{Concentration}=A+Bx+Cx^2+Dx^3+Ex^4$ r=1.00000 NTRM 0025 Constants: A=-0.017292000 B=0.283810000 C=0.000000000 D=0.000000000 E=0.000000000

Special Notes

Mail

Analyst

MISP/P-1

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Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer
CUBIX CORP
2106 NW 67TH PLACE
SUITE 7 ATTN RECEIVING
GAINESVILLE, FL 32653

Assay Laboratory
Scott Specialty Gases, Inc
1290 Combermere
Troy, MI 48083

Purchase Order : 94712 (3RD PTY)
Scott Project # : 574106

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : AAL17306 **Certificate Date :** 12/13/94 **Expiration Date :** 12/13/96
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	**13.72 ppm**	**±1% NIST Directly Traceable**
Total Oxides of Nitrogen	**14.17 ppm**	**Reference Value Only**

Balance Gas: Nitrogen

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 0025	11/21/96	ALM-042671	24.39 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO:Horiba/OPE-235/483814	11/29/94	Chemiluminescence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components
Nitric Oxide

First Triad Analysis

Date: 12/5/94	Response Units: mv	
Z1=0.00	R1=86.00	T1=48.40
R2=86.00	Z2=0.00	T2=48.40
Z3=0.00	T3=48.40	R3=86.00
Avg. Conc. of Cust. Cyl. 13.72 ppm		

Second Triad Analysis

Date: 12/13/94	Response Units: mv	
Z1=0.00	R1=86.00	T1=48.40
R2=86.00	Z2=0.00	T2=48.40
Z3=0.00	T3=48.40	R3=86.00
Avg. Conc. of Cust. Cyl: 13.72 ppm		

Calibration Curve

$Concentration=A+Bx+Cx^2+Dx^3+Ex^4$

r=1.00000	NTRM 0025
Constants:	A=-0.017292000
B=0.283810000	C=0.000000000
D=0.000000000	E=0.000000000

Special Notes

Mail

Analyst

MISP/P-1

Best Available Copy

Scott Specialty Gases, Inc.
1290 COMBERMERE STREET, TROY, MI 48083 (810) 589-2950 FAX:(810) 589-2134

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS

Customer	Assay Laboratory	
CUBIX CORP 2106 NW 67TH PLACE SUITE 7 ATTN RECEIVING GAINESVILLE, FL 32653	Scott Specialty Gases, Inc 1290 Combermere Troy, MI 48083	**Purchase Order :** 94712 (3RD PTY) **Scott Project # :** 574106

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay and Certification of Gaseous Calibration Standards; Procedure G1; September, 1993.

Cylinder Number : AAL19805
Certificate Date : 12/13/94
Expiration Date : 12/13/96
Cylinder Pressure + : 1900 psig
Previous Certificate Date : None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	**45.10 ppm**	**±1% NIST Directly Traceable**
Total Oxides of Nitrogen	**45.10 ppm**	**Reference Value Only**

Balance Gas: **Nitrogen**

+Do not use when cylinder presssure is below 150 psig.
*Analytical accuracy is inclusive of usual known error sources which at least include precision of the measurement processes.

REFERENCE STANDARD

Type	Expiration Date	Cylinder Number	Concentration
NTRM 1684	4/1/96	ALM-024582	95.2 ppm Nitric Oxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
NO : Horiba/OPE-235/483814	11/15/94	Chemiluminescence

ANALYZER READINGS (Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

Components	First Triad Analysis	Second Triad Analysis	Calibration Curve
Nitric Oxide	Date: 12/3/94 Response Units: mv Z1=0.00 R1=95.20 T1=45.20 R2=95.20 Z2=0.00 T2=45.20 Z3=0.00 T3=45.20 R3=95.20 Avg. Conc. of Cust. Cyl. 45.20 ppm	Date: 12/13/94 Response Units: mv Z1=0.00 R1=95.20 T1=45.00 R2=95.20 Z2=0.00 T2=45.00 Z3=0.00 T3=45.00 R3=95.20 Avg. Conc. of Cust. Cyl: 45.00 ppm	$Concentration=A+Bx+Cx^2+Dx^3+Ex^4$ r=0.99999 NTRM 1684 Constants: A=0.000000000 B=1.000000000 C=0.000000000 D=0.000000000 E=0.000000000

Special Notes

Mail

Analyst

MISP/P-1

Dry Gas Meter Calibration
Austin Laboratory

Date: 1-Mar-95
Technician: RWC

Reference Meter		Working Meter	
Manufacturer	American	Manufacturer	Equimeter
Meter No.	P164240	Meter No.	2962152
Calibration Factor	1.000	Previous Calibration Date	new
Units of Measure	ft3	Previous Calibration Factor	new
Run 1			
Start Time	14:50		
Stop Time	15:10		
Run Time (minutes)	20	Run Time (minutes)	20
Start Temperature °F	52	Start Temperature °F	52
Stop Temperature (°F)	52	Stop Temperature (°F)	68
Average Temperature (°F)	52	Average Temperature (°F)	60
Start Meter Reading (ft3)	0	Start Meter Reading (ft3)	1.02
Stop Meter Reading (ft3)	23.129	Stop Meter Reading (ft3)	24.661
Net Volume (ft3)	23.129	Net Volume (ft3)	23.639
Meter Rate (ft3/minute)	1.156	Meter Rate (ft3/minute)	1.18195
Corrected Volume (ft3 @ STP)	23.490	Corrected Volume (ft3 @ STP)	23.639
Calculated Meter Factor	0.9937		
Run 2			
Start Time	15:35		
Stop Time	15:55		
Run Time (minutes)	20	Run Time (minutes)	20
Start Temperature °F	52	Start Temperature °F	68
Stop Temperature (°F)	53	Stop Temperature (°F)	72
Average Temperature (°F)	52.5	Average Temperature (°F)	70
Start Meter Reading (ft3)	0	Start Meter Reading (ft3)	42.70
Stop Meter Reading (ft3)	17.003	Stop Meter Reading (ft3)	60.365
Net Volume (ft3)	17.003	Net Volume (ft3)	17.665
Meter Rate (ft3/minute)	0.850	Meter Rate (ft3/minute)	0.88325
Corrected Volume (ft3 @ STP)	17.252	Corrected Volume (ft3 @ STP)	17.332
Calculated Meter Factor	0.9954		
Run 3			
Start Time	15:57		
Stop Time	16:17		
Run Time (minutes)	20	Run Time (minutes)	20
Start Temperature °F	53	Start Temperature °F	70
Stop Temperature (°F)	53	Stop Temperature (°F)	69
Average Temperature (°F)	53	Average Temperature (°F)	69.5
Start Meter Reading (ft3)	0	Start Meter Reading (ft3)	60.612
Stop Meter Reading (ft3)	12.006	Stop Meter Reading (ft3)	73.081
Net Volume (ft3)	12.006	Net Volume (ft3)	12.469
Meter Rate (ft3/minute)	0.600	Meter Rate (ft3/minute)	0.62345
Corrected Volume (ft3 @ STP)	12.170	Corrected Volume (ft3 @ STP)	12.245
Calculated Meter Factor	0.9938		
AVERAGE DGM FACTOR	**0.9943**		

COMPONENT Altimeter
PART NO. 5934P-1A,83
SERIAL NO. J5924.
MFG United Instr. WORK ORDER # V7071

☒ Overhaul ☐ Repair ☐ Bench Check & Test ☐ Other

The Aircraft Appliance identified above was overhauled, repaired, or bench tested (as per block marked) and inspected, in accordance with current Federal Aviation Administration Regulations, and is approved for return to service. Details of this component are on file at this repair station.

AUTHORIZED SIGNATURE

JAN 16 1995
DATE

ALTIMETER SCALE ERROR

PART NO. 5934P1A83 SERIAL NO. J5924

ALTIMETER PRESSURE

TEST PT (FT)	INDICATOR READINGS AT + 25 °C	TEST PT (FT)	INDICATOR READINGS AT + 25 °C	TEST PT (FT)	INDICATOR READINGS AT + 25 °C
-1000	+5	8,000	+5	30,000	
0 0	0	10,000	+10	35,000	
500	0	12,000	+15	40,000	
1000	0	14,000	+15	45,000	
1500	0	16,000	+5	50,000	
2000	0	18,000	0	55,000	
3000	-5	20,000	-5	60,000	
4000	-10	22,000		70,000	
6000	-10	25,000		80,000	

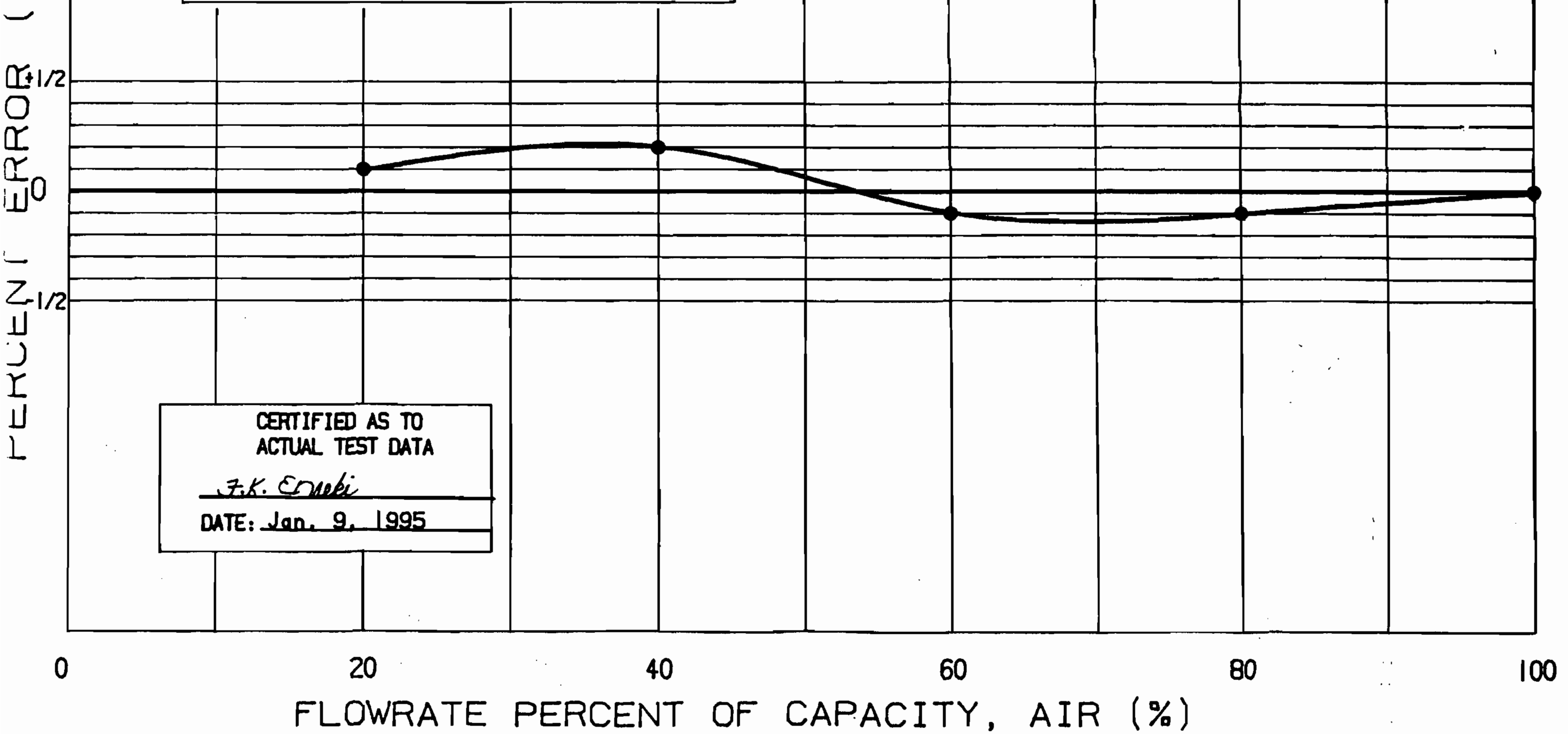
BFG/C9102

Equimeter
INCORPORATED A BTR Company
805 Liberty Blvd. DuBois, PA 15801

CURVE NUMBER 2

METER TEST PERFORMANCE

METER SIZE: S-275 STD
SERIAL NUMBER: 2962152
CUSTOMER NAME: McGINNIS INDUSTRIAL
ORDER NUMBER: G72-03487-001



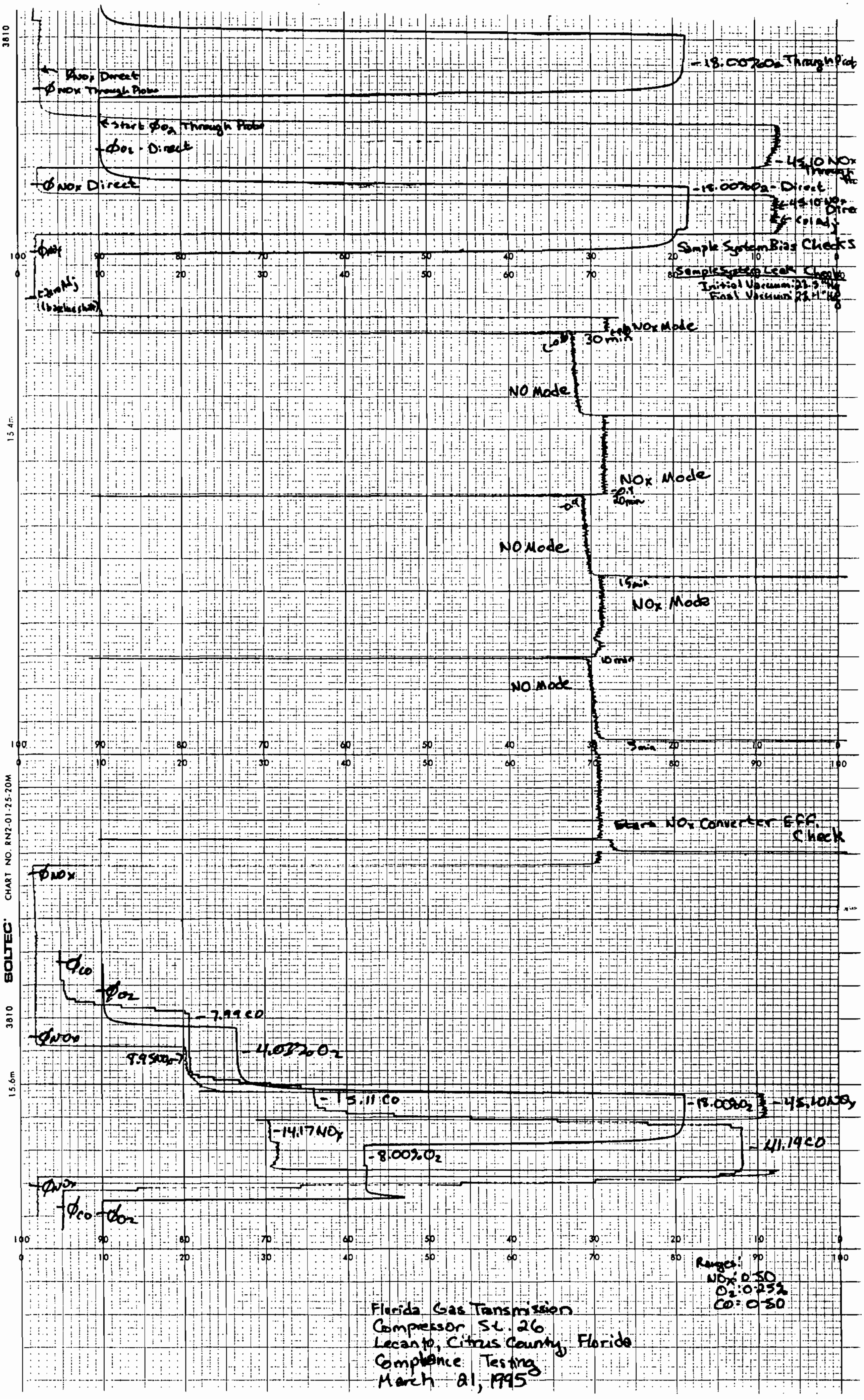
CERTIFIED AS TO
ACTUAL TEST DATA

F.K.

DATE: Jan. 9, 1995

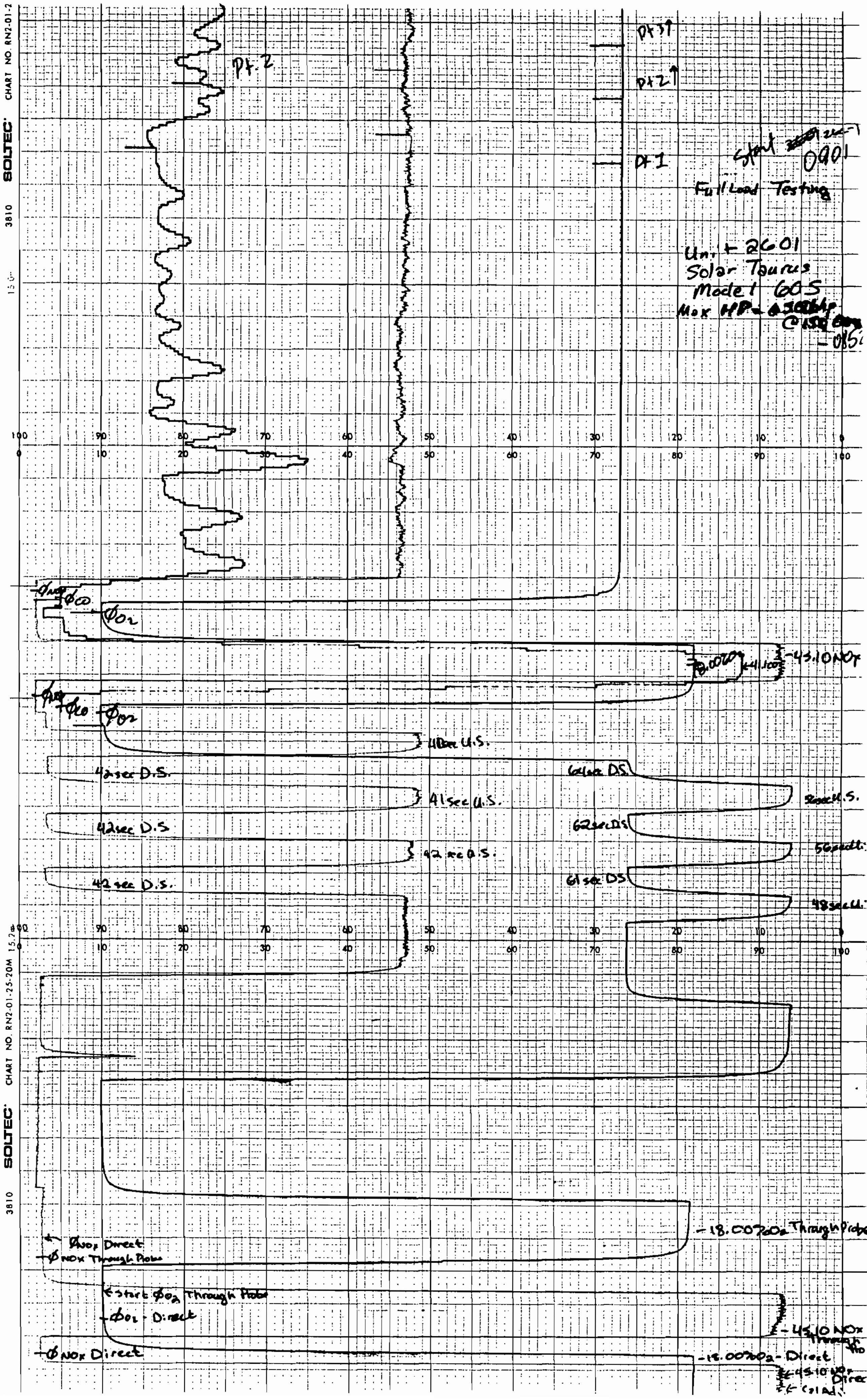
APPENDIX G: Strip Chart Records

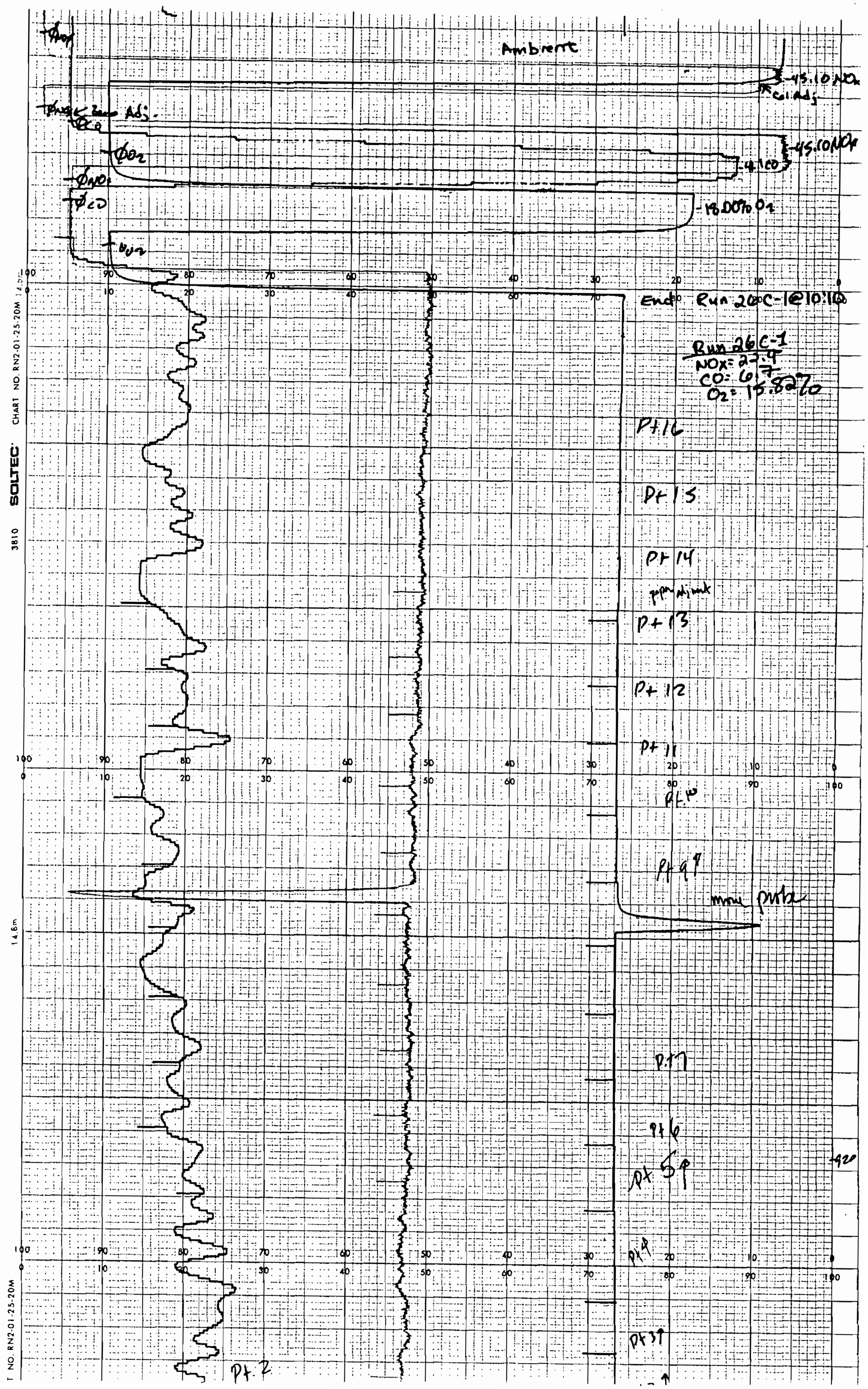
NOx, CO, O_2

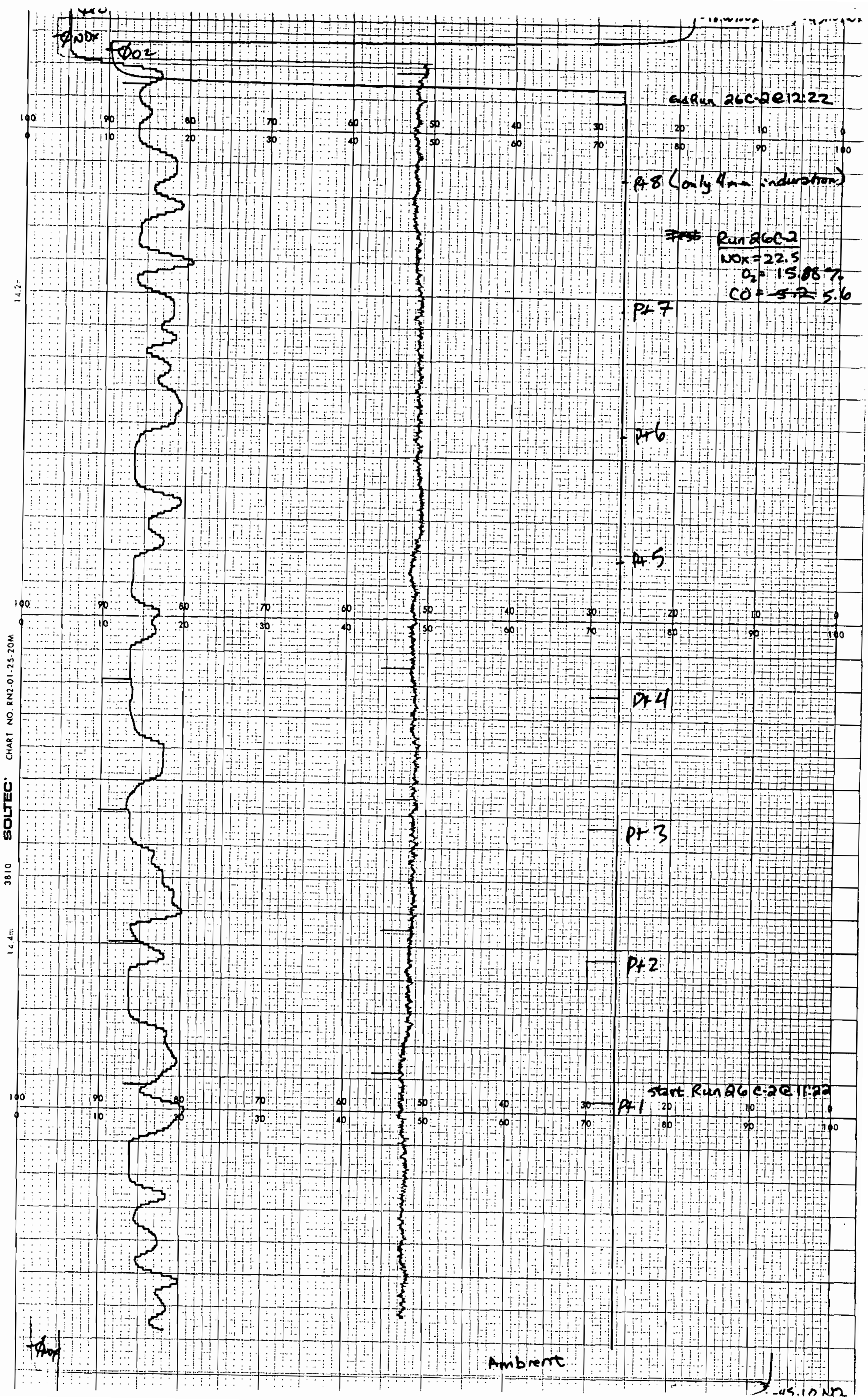


Ranges:
NOx: 0-50
O2: 0-25%
CO: 0-50

Florida Gas Transmission
Compressor St. 26
Lecanto, Citrus County, Florida
Compliance Testing
March 21, 1995


SOLTEC CHART NO. RN2-01-2
3810
Pt. 2
Pt 3↑
Pt 2↑
Pt 1
Start 0901
Full Load Testing
Unit 2601
Solar Taurus
Model 60S
Max HP =
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
ØCO
ØO2
-43.10 NOx
41.100
ØCO
ØO2
41sec U.S.
42sec D.S.
64sec DS
41sec U.S.
62sec DS
42sec D.S
42 sec D.S.
61 sec DS
42 sec D.S.
15.2
SOLTEC CHART NO. RN2-01-25-20M
3810
-18.00% O2 Through Probe
ØNOx Direct
ØNOx Through Probe
Start ØO2 Through Probe
ØO2 - Direct
ØNOx Direct
-45.10 NOx Through Pro
-18.00% O2 - Direct
45.10 NOx Direct
Cal Adj.

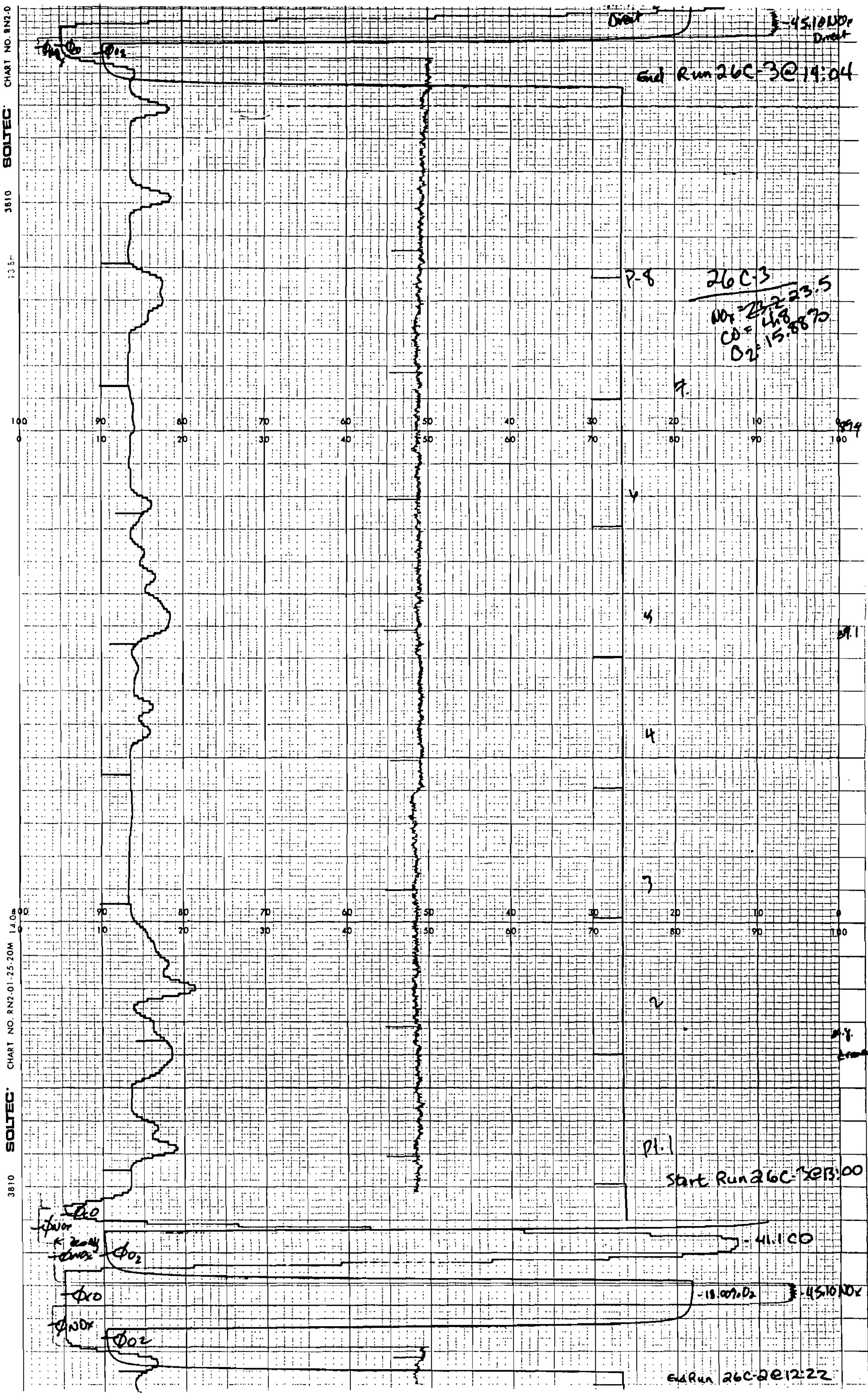
Ambient
-45.10 NOx
col Adj
Zero Adj
ØCO
ØO2
ØNOx
ØCO
-45.10 NOx
-4.1 CO
-18.00% O2
NO2
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
End Run 26C-1 @ 10:10
Run 26C-1
NOx = 22.9
CO: 6.7
O2 = 15.82%
Pt 16
Pt 15
Pt 14
ppm adjust
Pt 13
Pt 12
Pt 11
Pt 10
Pt 9
move probe
Pt 7
Pt 6
Pt 5
-920
Pt 4
Pt 3
Pt 2
SOLTEC 3810 CHART NO. RN2-01-25-20M
14.8m



End Run 26C-2@12:22

~~Test~~ Run 26C-2
NOx = 22.5
O_2 = 15.88%
CO = ~~5.2~~ 5.6

start Run 26 C-2@11:22



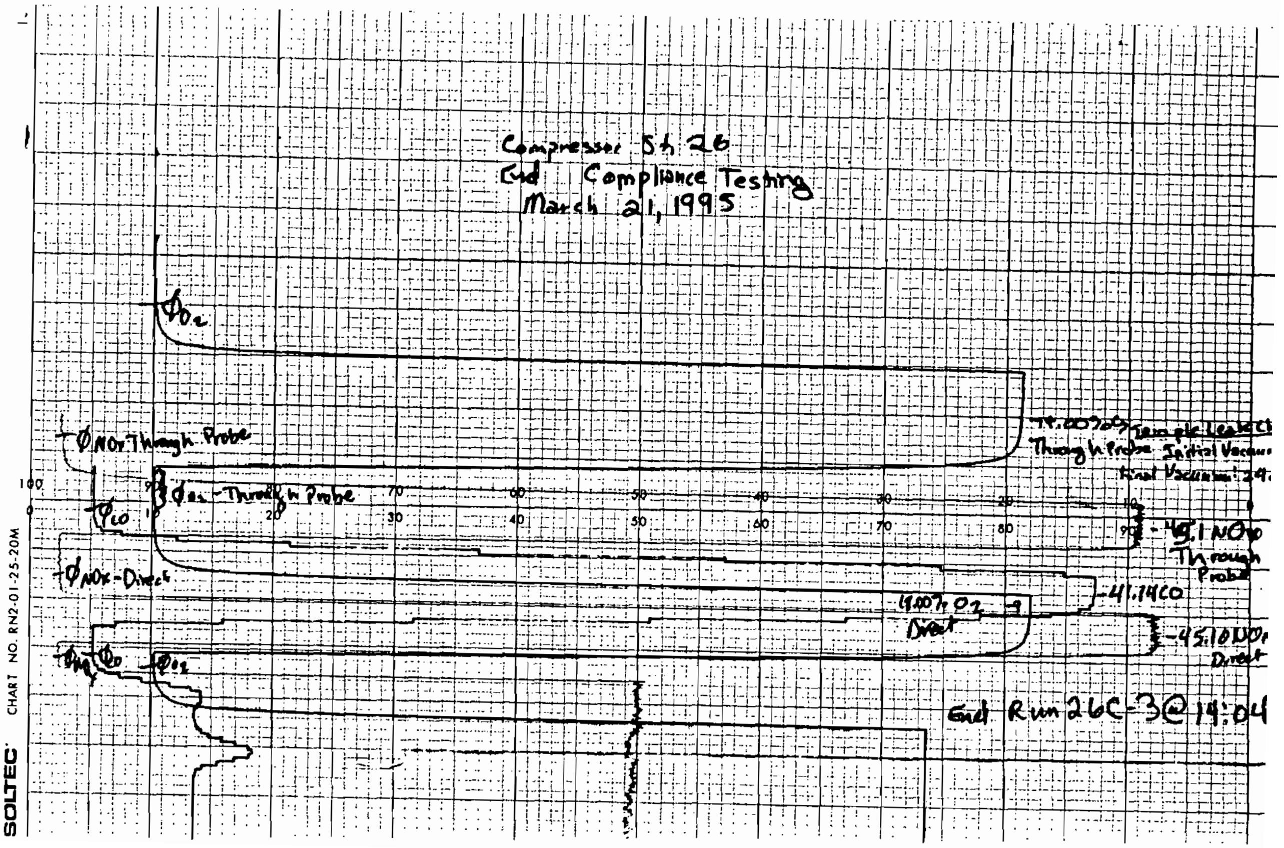
End Run 26C-3@14:04

26C-3

NOx = ~~23.2~~ 23.5
CO = 4.8
O2 = 15.8870

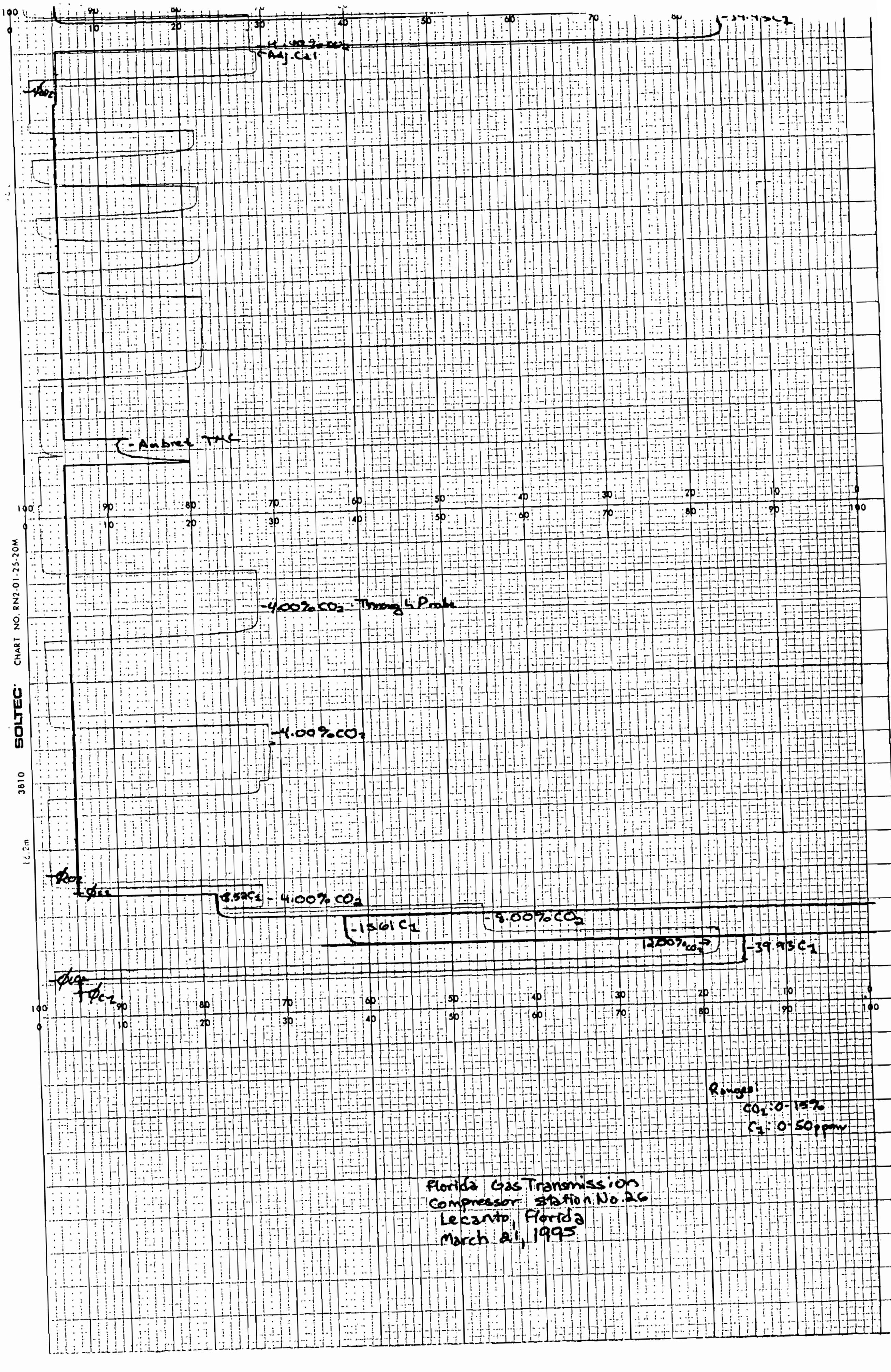
Start Run 26C-3@13:00

End Run 26C-2@12:22



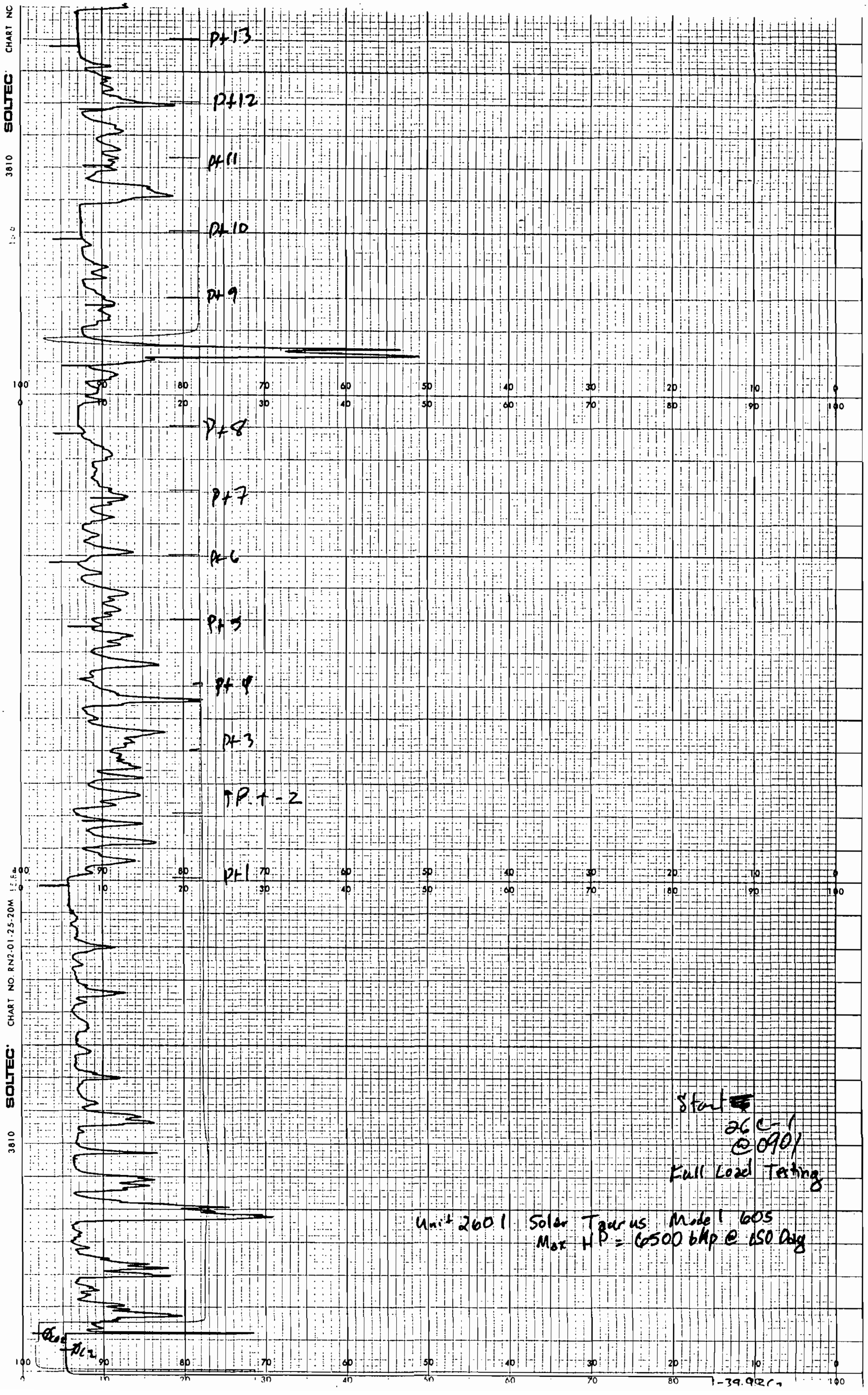
Compressor Stn 26
End Compliance Testing
March 21, 1995

THC, CO_2



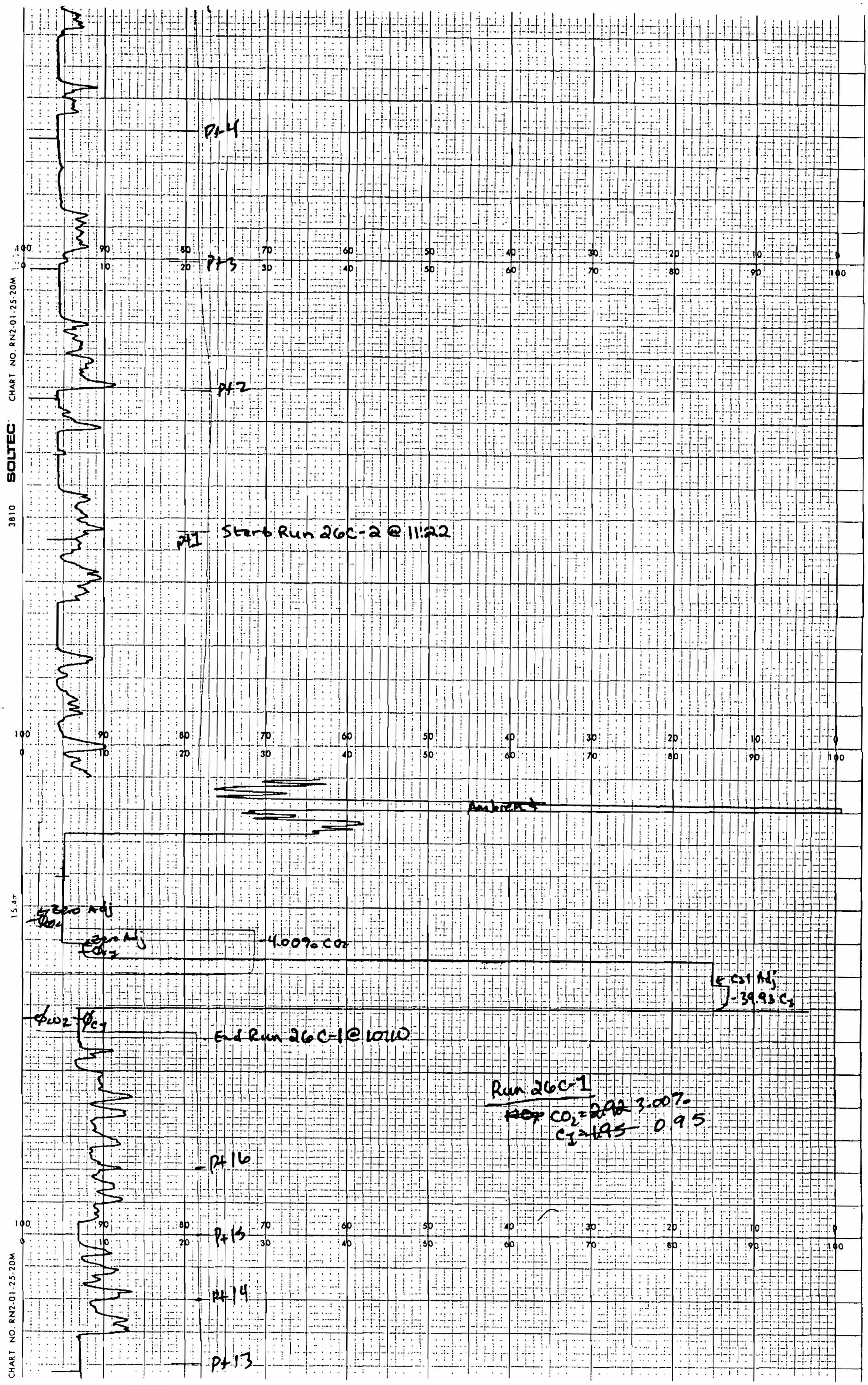
Ranges:
CO2: 0-15%
C1: 0-50ppmv

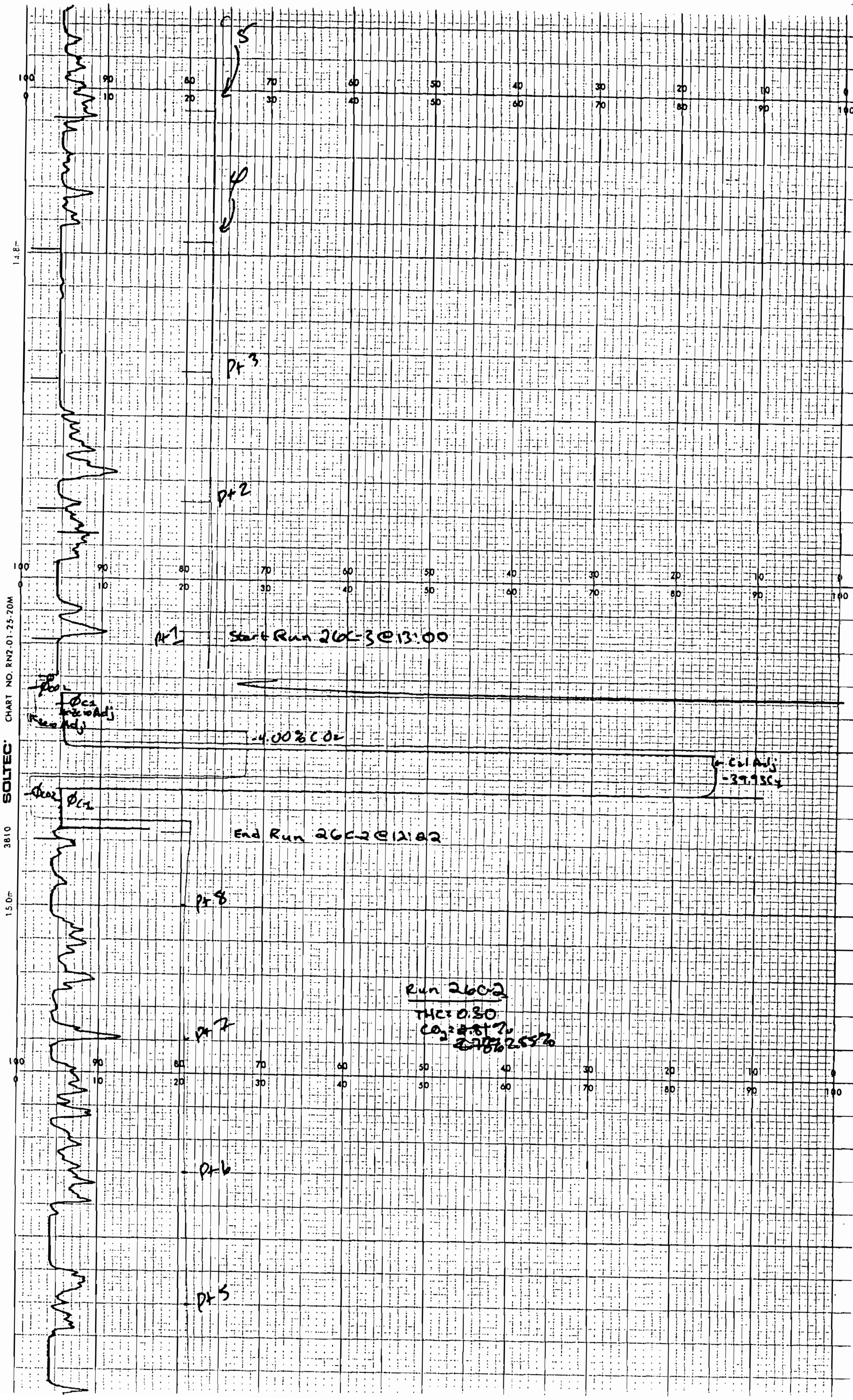
Florida Gas Transmission
Compressor Station No. 26
Lecanto, Florida
March 21, 1995

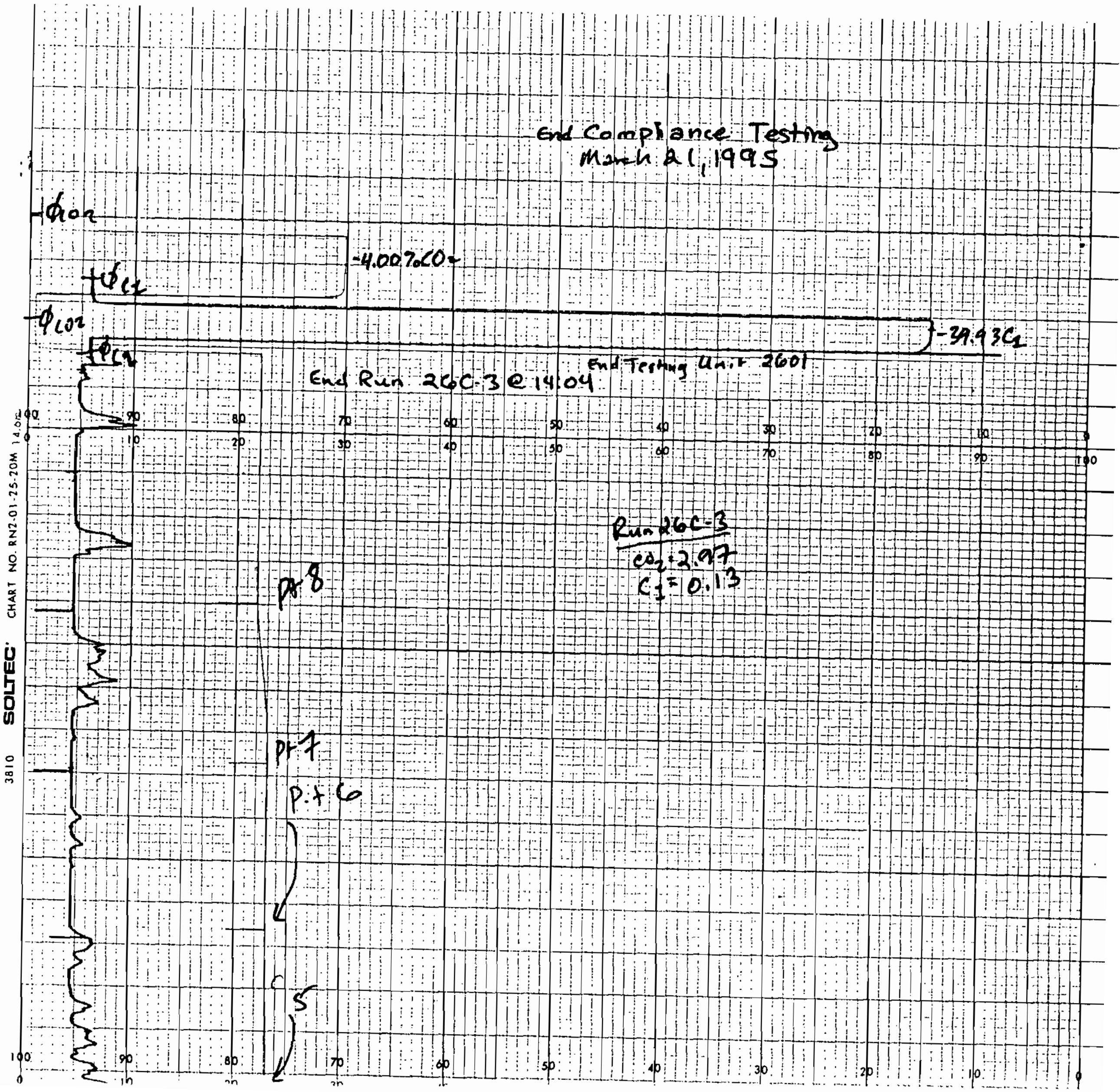


Start
26 C-1
@ 0901
Full Load Testing

Unit 2601 Solar Taurus Model 60S
Max HP = 6500 bhp @ 150 Deg


Pt 4
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
Pt 3
CHART NO. RN2-01-25-20M
Pt 2
SOLTEC
3810
Pt 1 Start Run 26C-2 @ 11:22
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
Ambient
15.4
Zero Adj CO2
Zero Adj CI
-4.00% CO2
Cal Adj
-39.93 CI
ØCO2 ØCI
End Run 26C-1 @ 10:10
Run 26C-1
~~PEP~~ CO2 = ~~2.92~~ 3.00%
CI = ~~1.95~~ 0.95
Pt 16
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
Pt 15
CHART NO. RN2-01-25-20M
Pt 14
Pt 13


SOLTEC CHART NO. RN2-01-25-20M
3810
14.8
15.0
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
5
4
Pt 3
Pt 2
Pt 1
Start Run 26C-3 @ 13:00
ØCO2
ØC1
Zero Adj
(Zero Adj)
-4.00% CO2
Cal Adj
-39.95C4
ØCO2
ØC1
End Run 26C-2 @ 12:22
Pt 8
Run 26C-2
THC: 0.30
CO2 = ~~4.81%~~
~~2.78%~~ 2.55%
Pt 7
Pt 6
Pt 5



End Compliance Testing
March 21, 1995

End Testing Unit 2601

End Run 26C-3 @ 14:04

Run 26C-3
CO_2 = 2.97
C_1 = 0.13

APPENDIX H
Opacity Observations

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 00039 Page 1 Of 6

Continued on VEO Form Number 00040

Method Used (Circle One) [✓ Method 9] 203A 203B Other: ____

Company Name: Florida Gas Transmission

Facility Name: Compressor Station No. 26

Street Address: 245 N Maylen

City: Lecanto State: Florida Zip: 34461

Process: Gas Compressor Turbine Unit #: 2601 Operating Mode: Full Load, 98.6%

Control Equipment: Solonox (dry, low NOx combustors) Operating Mode: normal

Describe Emission Point: Circular Grayish-Black stack w/ silencer on a natural-gas fired turbine. Only tall exhaust stack present

Height of Emiss. Pt. Start ~65' End same

Height of Emiss. Pt. Rel. to Observer Start ~65' End same

Distance to Emiss. Pt. Start ~262' End same

Direction to Emiss. Pt. (Degrees) Start ~289° End same

Vertical Angle to Obs. Pt. Start ~139° End same

Direction to Obs. Pt. (Degrees) Start ~289° End same

Distance and Direction to Observation Point from Emission Point Start directly above End same

Describe Emissions Start none End same

Emission Color Start none End same

Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background Start clear sky, slightly washed End same

Background Color Start light blue End same

Sky Conditions Start clear End clear

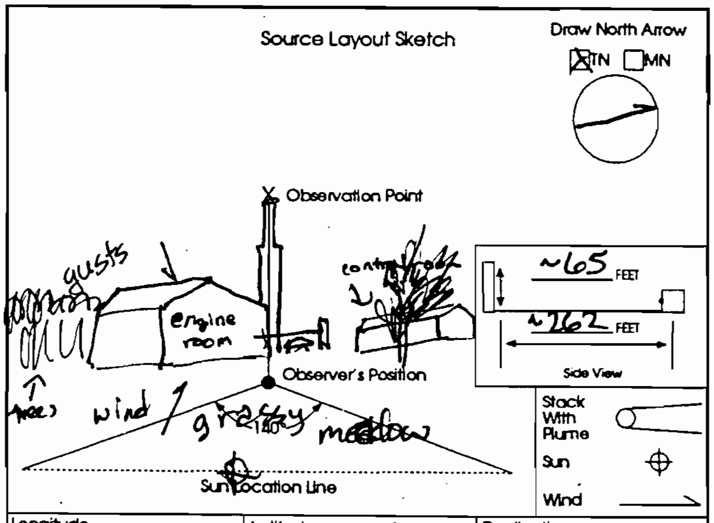
Wind Speed Start ~1-2mph End gusts ~15-20mph

Wind Direction Start SE End W

Ambient Temp. Start 69°F End 79.5°F

Wet Bulb Temp. 64°/67°

RH Percent 76%/51%



Longitude 83° 36'22"W Latitude 30° 09'50"N Declination

Additional Information: Run 26C-1, FDEP Permit No. AC ~~02~~09-229441

Observation Date: March 21, 1995 Time Zone: EST Start Time: 9:02 End Time: 10:02

Min	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	Wind changed direction
17	0	0	0	0	& speed
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	Wind changed
29	0	0	0	0	back to original
30	0	0	0	0	direction w/ gusts

Observer's Name (Print): Leonard Brenner

Observer's Signature: Leonard B Date: March 21, 1995

Organization: Cubix Corporation

Certified By: Eastern Technical Associates Date: Dec 7, 1994

VEOF1.1

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number 00040 Page 2 of 6

Continued on VEO Form Number ~~Mars~~ 00041

Method Used (Circle One) Method 9 203A 203B Other:

Company Name

Facility Name

Street Address

City | State | Zip

Process | Unit # | Operating Mode

Control Equipment | Operating Mode

Describe Emission Point

Height of Emiss. Pt. Start End | Height of Emiss. Pt. Rel. to Observer Start End

Distance to Emiss. Pt. Start End | Direction to Emiss. Pt. (Degrees) Start End

Vertical Angle to Obs. Pt. Start End | Direction to Obs. Pt. (Degrees) Start End

Distance and Direction to Observation Point from Emission Point Start End

Describe Emissions Start End

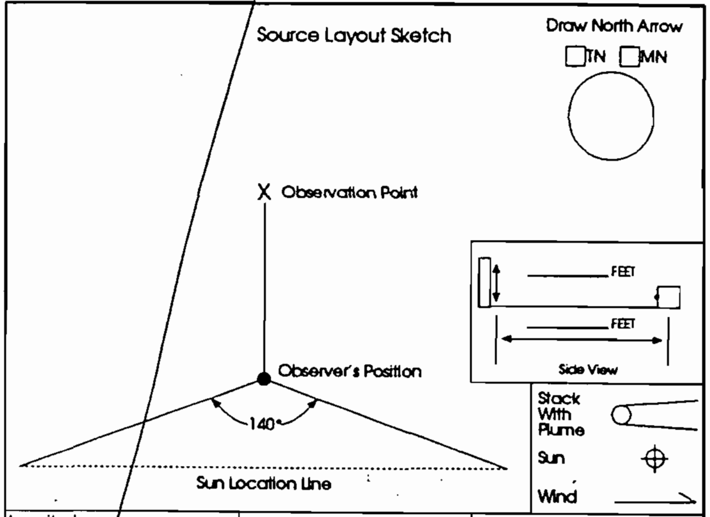
Emission Color Start End | Water Droplet Plume Attached ☐ Detached ☐ None ☐

Describe Plume Background Start End

Background Color Start End | Sky Conditions Start End

Wind Speed Start End | Wind Direction Start End

Ambient Temp. Start End | Wet Bulb Temp. | RH Percent



Longitude | Latitude | Declination

Additional Information Run 26C-1 con't

Observation Date	Time Zone	Start Time	End Time
March 21, 1995	EST	9:02	10:02

Sec / Min	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	Wind changed direction
13	0	0	0	0	again
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	~~Wind back to original~~
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) Leonard Brenner

Observer's Signature Leonard B | Date March 21, 1995

Organization Cubix Corporation

Certified By Eastern Technical Associates | Date Dec 7, 1994

VEOF1.1

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One) [✓ Method 9] 203A 203B Other: ____

Company Name: Florida Gas Transmission

Facility Name: Compressor Station No. 26

Street Address: 245 N. Maylen

City: Lecanto State: Florida Zip: 34461

Process: Gas Compressor Turbine Unit #: 2601 Operating Mode: Full Load, 93.8%

Control Equipment: Solonox (dry, low combustors) Operating Mode: normal

Describe Emission Point: Circular grayish-black stack w/silencer on a nat. gas-fired turbine. Only 1 exhaust stack present

Height of Emiss. Pt. Start ~65' End same

Height of Emiss. Pt. Rel. to Observer Start ~[illegible]6' End same

Distance to Emiss. Pt. Start ~244 End same

Direction to Emiss. Pt. (Degrees) Start ~314° End same

Vertical Angle to Obs. Pt. Start ~17.5° End same

Direction to Obs. Pt. (Degrees) Start ~314° End same

Distance and Direction to Observation Point from Emission Point Start directly above End same

Describe Emissions Start none visible End same

Emission Color Start none End none

Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background Start light sky w/small cloud patches End same

Background Color Start light blue End grayish-white

Sky Conditions Start clear End scattered

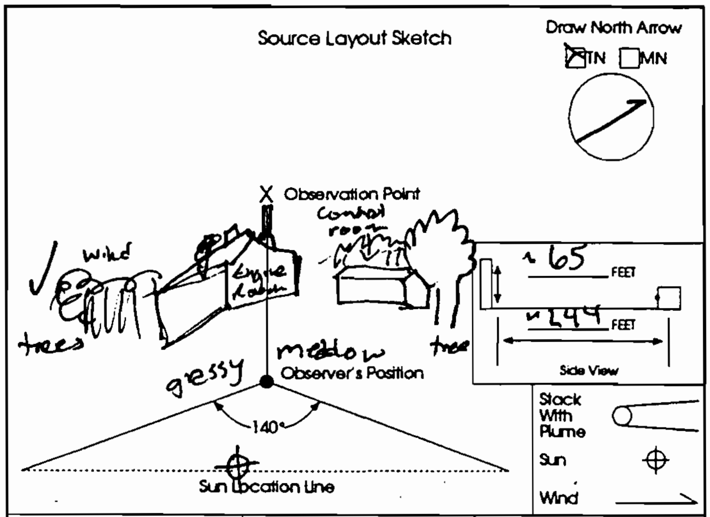
Wind Speed Start ~5-10 mph End same

Wind Direction Start NW End same

Ambient Temp. Start 79° End 80.5

Wet Bulb Temp. 68°/70°

RH Percent 57%/60%



Longitude: 83°36'22"W

Latitude: 30°09'50"N

Declination: ____

Additional Information: Run 26C-2 FDEP Permit No. AC 09-229441

Form Number: 00041 Page 3 of 6

Continued on VEO Form Number: 00042

Observation Date: March 21, 1995 Time Zone: EST Start Time: 11:22 End Time: 12:22

Sec / Min	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Leonard Brenner

Observer's Signature: Leonard B Date: March 21, 1995

Organization: Cubix Corporation

Certified By: Eastern Technical Associates Date: Dec 7, 1994

VEOF1.1

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	00042	Page 4	Of 6
Continued on VEO Form Number	00043		

Method Used (Circle One)
Method 9   203A   203B   Other: ______

Company Name		
Facility Name		
Street Address		
City	State	Zip

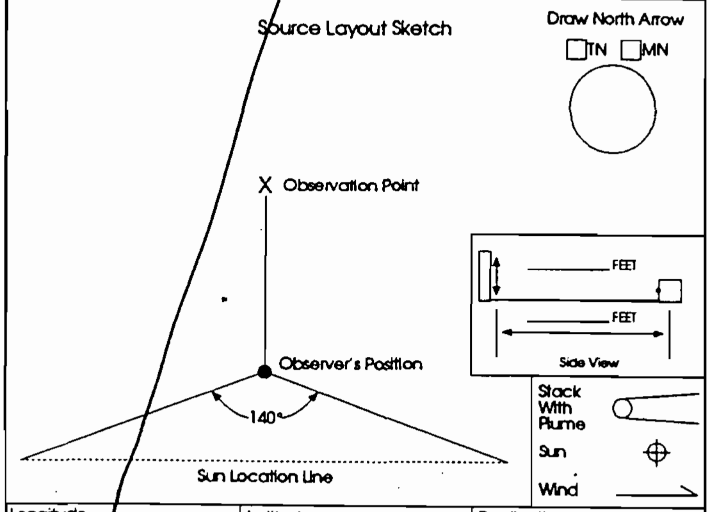
Process	Unit #	Operating Mode
Control Equipment		Operating Mode

Describe Emission Point	
Height of Emiss. Pt. Start End	Height of Emiss. Pt. Rel. to Observer Start End
Distance to Emiss. Pt. Start End	Direction to Emiss. Pt. (Degrees) Start End

Vertical Angle to Obs. Pt. Start End	Direction to Obs. Pt. (Degrees) Start End
Distance and Direction to Observation Point from Emission Point Start	End

Describe Emissions Start	End
Emission Color Start End	Water Droplet Plume Attached ☐ Detached ☐ None ☐

Describe Plume Background Start	End	
Background Color Start End	Sky Conditions Start End	
Wind Speed Start End	Wind Direction Start End	
Ambient Temp. Start End	Wet Bulb Temp.	RH Percent



Longitude	Latitude	Declination

Additional Information Run 26 C-2 cont.

Observation Date	Time Zone	Start Time	End Time
March 21, 1995	EST	11:22	12:22

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) Leonard Brenner	
Observer's Signature Leonard B	Date March 21, 1995
Organization Cubix Corporation	
Certified By Eastern Technical Associates	Date Dec 7, 1994

VEOF1.1

EPA
VISIBLE EMISSION OBSERVATION FORM 1

Form Number 00043 Page 5 of 6

Continued on VEO Form Number 00044

Method Used (Circle One) [✓ Method 9] 203A 203B Other: ____

Company Name: Florida Gas Transmission

Facility Name: Compressor Station No. 26

Street Address: 245 N. Meylen

City: lecanto State: Florida Zip: 34461

Process: Gas Compressor Turbine Unit #: 2601 Operating Mode: Full Load, 96.1%

Control Equipment: Solonox (dry, low NO_x combustors) Operating Mode: normal

Describe Emission Point: Cirulor grayish-black stack w/silencer on a nat. gas-fired turbine. Only tall stack present.

Height of Emiss. Pt. Start ~65' End same

Height of Emiss. Pt. Rel. to Observer Start ~76' End same

Distance to Emiss. Pt. Start ~244' End same

Direction to Emiss. Pt. (Degrees) Start ~314° End same

Vertical Angle to Obs. Pt. Start ~17.5 End same

Direction to Obs. Pt. (Degrees) Start ~314° End same

Distance and Direction to Observation Point from Emission Point Start directly above End same

Describe Emissions Start none End same

Emission Color Start none End same

Water Droplet Plume Attached ☐ Detached ☐ None ☒

Describe Plume Background Start light-blue sky w/ cloud patches End same

Background Color Start grayish-white End blue

Sky Conditions Start scattered End same

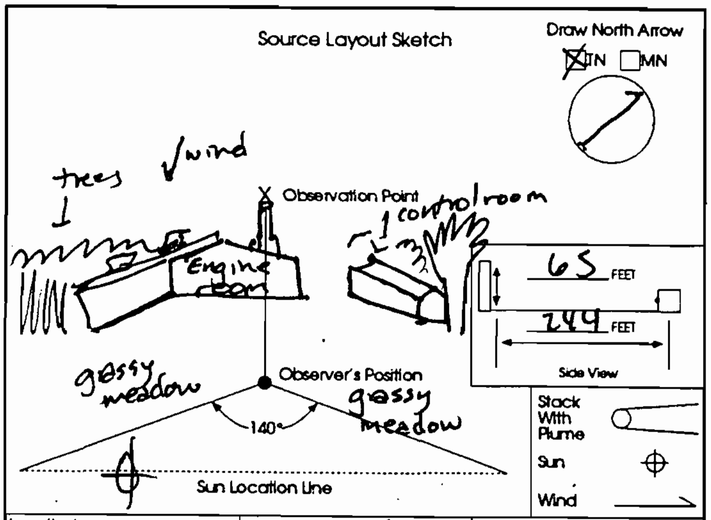
Wind Speed Start 10-15 End

Wind Direction Start NW End same

Ambient Temp. Start 80° End 79.5

Wet Bulb Temp. 69°/68

RH Percent



Longitude 83°36'22"W Latitude 30° 09'50"N Declination

Additional Information Run 26C-3

FDEP Permit No. AC 09-229441

Observation Date: March 21, 1995 Time Zone: EST Start Time: 13:00 End Time: 14:00

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Leonard Brenner

Observer's Signature: Leonard Date: March 21, 1995

Organization: Cubix Corporation

Certified By: Eastern Technical Associates Date: Dec 7, 1994

VEOF1.1

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Method Used (Circle One)
Method 9 203A 203B Other:

Company Name

Facility Name

Street Address

City State Zip

Process Unit # Operating Mode

Control Equipment Operating Mode

Describe Emission Point

Height of Emiss. Pt. Start End
Height of Emiss. Pt. Rel. to Observer Start End
Distance to Emiss. Pt. Start End
Direction to Emiss. Pt. (Degrees) Start End

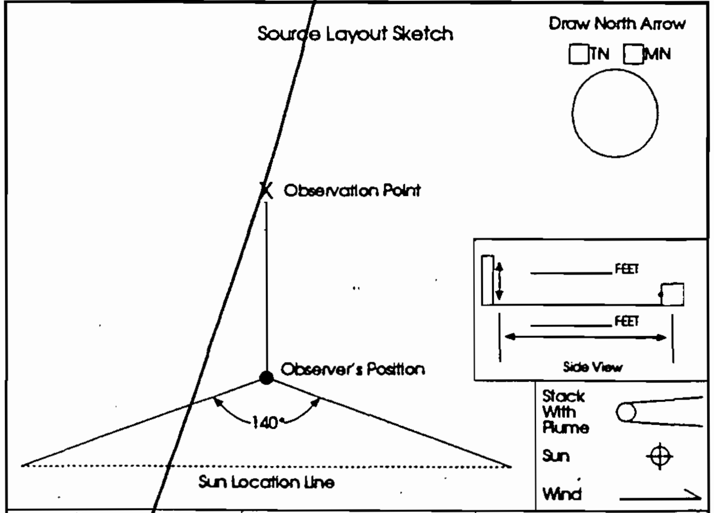
Vertical Angle to Obs. Pt. Start End
Direction to Obs. Pt. (Degrees) Start End
Distance and Direction to Observation Point from Emission Point Start End

Describe Emissions Start End
Emission Color Start End
Water Droplet Plume Attached ☐ Detached ☐ None ☐

Describe Plume Background Start End
Background Color Start End
Sky Conditions Start End
Wind Speed Start End
Wind Direction Start End
Ambient Temp. Start End
Wet Bulb Temp.
RH Percent

Source Layout Sketch

Draw North Arrow ☐TN ☐MN



Longitude
Latitude
Declination

Additional Information
Run 26C-3 continued

Form Number	0 0 0 4 4	Page	6 of 6				
Continued on VEO Form Number	not applicable						

Observation Date	Time Zone	Start Time	End Time
March 21, 1995	EST	13:00	14:00

Sec / Min	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25	0	0	0	0	
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print) Leonard Brenner

Observer's Signature Leonard B Date March 21, 1995

Organization Cubix Corporation

Certified By Eastern Technical Associates Date Dec 7, 1994

VISIBLE EMISSIONS EVALUATION

This is to certify that

Leonard Bremner

did complete a course in the methods of determining opacity of visible emissions from sources as specified by Federal Reference Method 9 conducted by Eastern Technical Associates of Raleigh, North Carolina.

William H. Charles
Course Moderator

Jacksonville
Location

December 6, 1994
Date

© GOES 445

LITHO. IN U.S.A.

VISIBLE EMISSIONS EVALUATOR

Thi[illegible] that

Leona[illegible]

met the specifications of Fed[illegible] 9 and qualified as a visible emissions evaluator. Maxim[illegible] black smoke did not exceed 7.5% opacity and no singl[illegible] ex[illegible]ity was incurred during the certification test condu[illegible] Eas[illegible]ciates of Raleigh, North Carolina. This certifica[illegible] of issue.

Thom[illegible] | [illegible]16556
Presi[illegible] | [illegible]ate Number

[illegible] | [illegible]

David B. Savage, Jr. | December 7, 1994
Program Manager | **Date of Issue**

© GOES 445

LITHO. IN U.S.A.

CONGRATULATIONS,

Here is the wallet card signifying your successful certification at the recent Florida Department of Environmental Regulation Smoke School conducted by Eastern Technical Associates.

Your certificate is valid for six (6) months. To keep your certification current, you must recertify on or before the expiration date on the card.
Please mark your calendar accordingly.

STATE OF FLORIDA
EPARTMENT OF ENVIRONMENTAL REGULATION

THIS IS TO CERTIFY THAT

LEONARD BRENNER, has completed the STATE OF FLORIDA visible emissions evaluation training and is a qualified observer of visible emissions as specified by EPA reference method 9.

THIS CERTIFICATE EXPIRES Jun 8, 1995

Edward J. Huck
CERTIFICATE OFFICER

Leonard B
BEARER'S SIGNATURE

Edward J. Huck
EDWARD HUCK

FLORIDA DEPARTMENT OF
ENVIRONMENTAL REGULATION

APPENDIX I
FDEP Permit

Duane

RECEIVED
SEP 29 1993
ENVIRONMENTAL AFFAIRS

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

DER File No. AC 09-229441
Citrus County

26

Mr. Carl D. Schulz, Vice President
Florida Gas Transmission Company
P. O. Box 1188
Houston, Texas 77251-1188

Enclosed is Permit Number AC 09-229441 to construct a 6,500 bhp natural gas fired turbine at the Florida Gas Transmission Company's facility located 2 miles NW of the town of Lecanto along SR 44, Citrus County, Florida. This permit is issued pursuant to Section(s) 403, Florida Statutes.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

C H Fancy

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, FL 32399-2400
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 9-24-93 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.

Kym Tober (Clerk) 9-24-93 (Date)

Copies furnished to:
- B. Thomas, SW District
- B. Andrews, P.E., ENSR

COPY FOR:
✓ WRO
✓ CC
✓ Other VDP
9-24 Original to Phase III Files

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

PERMITTEE:

Florida Gas Transmission Company
P. O. Box 1188
Houston, Texas 77251-1188

Permit Number: AC 09-229441

Expiration Date: June 30, 1995
County: Citrus
Latitude/Longitude: 30°09'50"N
83°36'22"W
Project: Natural Gas Turbine Engine (No. 2601) And Associated Supporting Equipment

The permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-210, 212, 272, 275, 296, and 297; and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of one natural gas fired turbine engine to be located 2 miles northwest of the town of Lecanto along State Route 44 in Citrus County, Florida. The UTM coordinates are, 353.212 km East and 3193.897 km North.

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

Attachments are listed below:

1. Application to Construct/Operate Air Pollution Sources
   DEP Form 17-1.202(1) received April 12, 1993

Printed on recycled paper.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules.

This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

a. Have access to and copy any records that must be kept under the conditions of the permit;

b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

R

a. a description of and cause of non-compliance; and

b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

GENERAL CONDITIONS:

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;

GENERAL CONDITIONS:

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

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Emission Limits

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

Pollutant	lbs/hr	tons/yr	Emission Factor
Nitrogen Oxides**	8.92	39.05	0.62 g/bhp-hr
Carbon Monoxide	6.46	28.29	0.45 g/bhp-hr
Volatile Organic Compounds (non-methane)	0.37	1.62	0.26 g/bhp-hr
Particulate Matter (TSP)	0.35	1.51	5 lbs/MMscf
Particulate Matter (PM_{10})	0.35	1.51	5 lbs/MMscf
Sulfur Dioxide	1.97	8.62	10 gr S/100scf

**NOx Emission Standard of 42 ppmvd at 15% O_2 shall not be exceeded
*Based on load conditions

2. Visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year). The emergency electrical generator is allowed to operate not more than 400 hours per year.

4. This source is allowed to burn natural gas only.

5. The permitted operating parameters and utilization rates for this natural gas turbine 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 0.0684 MMcf/hr (based on a fuel heating value of 1040 BTU/CF).
- Maximum heat input shall not exceed 71.52 MMBtu/hr.

SPECIFIC CONDITIONS:

6. Any change in the method of operation, equipment or operating hours shall be submitted to the DEP's Bureau of Air Regulation and Southwest District offices.

7. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

Compliance Determination

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

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

9. Other DEP approved methods may be used for compliance testing after prior Department approval. Compliance with the SO_2 emission limit can be determined by calculations based on fuel analysis using ASTM D1072-80, D3031-81, D4084-82, or D3246-81 for sulfur content of gaseous fuels. TC

10. Initial compliance with the volatile organic compound (VOC) emissions limits will be demonstrated by EPA Method 25A or Method 18. Thereafter, except as provided in Rule 17-297.340(2), compliance with the VOC emission limits will be assumed, provided the CO allowable emission rate is achieved. TO

11. During performance tests, to determine compliance with the NO_x standard, measured NO_x emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor: TC

$$NO_X = (NO_X\ obs) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19} (H_{obs} - 0.00633) \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

where:

NO_X = Emissions of NO_X at 15 percent oxygen and ISO standard ambient conditions.

NO_X obs = Measured NO_X emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure. TO

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

12. Stack sampling facilities shall be required and shall comply with the requirements of F.A.C. Rule 17-297.345. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in writing in advance of the compliance test(s). The source shall operate between 90% and 100% of maximum capacity for the ambient conditions experienced during compliance test(s). Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion. TO 13 5

13. Sulfur and nitrogen content and lower heating value of the fuel being fired in the combustion turbine shall be determined as specified in 40 CFR 60.334(b). Any request for a future custom monitoring schedule shall be made in writing and directed to the Southwest District office. Any custom schedule approved by DEP pursuant to 40 CFR 60.334(b) will be recognized as enforceable provisions of the permit, provided that the holder of this permit demonstrate that the provisions of the schedule will be adequate to assure continuous compliance. 4

14. The permittee shall annually perform a visual inspection of the turbine compressor engine, filters, associated piping system for rust spots, cracks, leaks and odors. Also ensure that safety valves and the stack are in proper order and working properly. The permittee shall document the findings and corrective action taken. 0

SPECIFIC CONDITIONS:

Rule Requirements

-16 15. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-210, 212, 275, 296, 297 and 17-4, Florida Administrative Code and 40 CFR 60 (July, 1992 version).

-17 16. This source shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 17-296.800,(2)(a), Standards of Performance for Stationary Gas Turbines. NSPS

-18 17. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-210.300(1)).

-19 18. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor pursuant to F.A.C. Rule 17-296.320(2). Objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonable interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance pursuant to F.A.C. Rule 17-296.200(123).

-20 19. This source shall be in compliance with all applicable provisions of F.A.C. Rules 17-210.650: Circumvention; 17-210.700: Excess Emissions; 17-296.800: Standards of Performance for New Stationary Sources (NSPS); Chapter 17-297: Stationary Sources-Emissions Monitoring; Chapter 17-296: Stationary Source-Emission Standards and, 17-4.130: Plant Operation-Problems.

20 21. Fugitive dust emissions, during the construction period, shall be minimized by covering or watering dust generation areas. O

22. Pursuant to F.A.C. Rule 17-210.300(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur and nitrogen content, turbine inlet and outlet temperature, RPM, lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year. R S

23. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090). S

SPECIFIC CONDITIONS:

24. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this 23 day

of September, 1993

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Howard L Rhodes

Howard L. Rhodes, Director
Division of Air Resources
Management

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

September 14, 1994

RECEIVED
SEP 20 1994
Bureau of
Air Regulation

Mr. C. H. Fancy, P.E.
Chief
Bureau of Air Regulation
Florida Dept of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Re: Florida Gas Transmission Company
Notification of Anticipated Startup

Permit No. AC50-229440, Station 21, Palm Beach County, FL

Permit No. AC09-229441, Station 26, Citrus County, FL

As required by 40 CFR 60, Florida Gas Transmission Company hereby makes notification of the anticipated startup of the new turbines at the above-referenced facilities. The startup of the new turbines is now anticipated for October 14, 1994.

Notification will be made of actual startup as required. If you have any questions or need further information, please call me at 407-875-5816 or Duane Pierce at 713-646-7323.

Sincerely,

Allan Weatherford, R.E.M.
Division Environmental Specialist

~~Dave~~ Clair
~~Duane~~ FYI
Please return
for file
Patty
~~Teresa: Does~~ [illegible]?

bc
AW0914cf

cc: **Jim Pennington**, Bureau of Air Regulation, FDEP, 2600 Blair Stone Rd, Tallahassee, FL
B. Thomas, FDEP, SW District, 4520 Oak Fair Blvd, Tampa, Florida 33610-7347
I. Goldman ,FDEP, SE District, 4520 Oak Fair Blvd. Tampa, Florida 33610-7347
Jeff Koerner, Air Pollution Control Section, Palm Beach County Public Health Unit,
PO Box 29, West Palm Beach, FL 33402-0029

Mike Teal
Charlie Thompson
Glenn Sellars

Alan France
David Gaines
Duane Pierece

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Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED

MAY 12 1994

Bureau of
Air Regulation

May 9, 1994

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

RE: Permit No. AC 09-229441
Florida Gas Transmission Company, Compressor Station No. 26, Citrus County
Notification of Commencement of Construction

Dear Mr. Fancy:

As required by 40 CFR 60.7(a)(1), Florida Gas Transmission Company hereby makes notification of the commencement of construction for the new turbine at Compressor Station No. 26 as authorized under FDEP Permit No. AC 09-229441. This construction began on April 25, 1994.

If you have any questions or need further information, please call me at (713) 646-7323 or Mr. Bill Osborne at (713) 853-3294.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor

CC: Jim Pennington, Bureau of Air Regulation, Florida Department of Environmental Protection, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400

B. Thomas, Florida Department of Environmental Protection, Southwest District, 4520 Oak Fair Boulevard, Tampa, Florida 33610-7347

P 872 562 514

Receipt for Certified Mail

UNITED STATES POSTAL SERVICE

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

Sent to
Mr. Duane Pierce, Ph.D.

Street and No.
P. O. Box 1188

P.O., State and ZIP Code
Houston, Texas 77251-1188

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$

Postmark or Date
Mailed: 12/[illegible]/93
Request for Permit Amendments

PS Form 3800, JUNE 1991

Is your RETURN ADDRESS completed on the reverse side?

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

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

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

Consult postmaster for fee.

3. Article Addressed to:
Mr. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company
P.O. Box 1188
Houston, Texas 77251-1188

4a. Article Number
P 872 562 514

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

7. Date of Delivery DEC 27 1993

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, December 1991 ☆U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

December 16, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company
P.O. Box 1188
Houston, Texas 77251-1188

Dear Mr. Pierce:

RE: Request for Permit Amendments
AC 09-229441 Natural Gas Compressor Station No. 26, Citrus County
AC 50-229440 Natural Gas Compressor Station No. 21, Palm Beach County
AC 62-229319/PSD-FL-202 Compressor Station No. 15, Taylor County
AC 56-230129/PSD-FL-203 Compressor Station No. 20, St. Lucie County

The Department has reviewed your November 24, 1993, letter requesting some minor changes from the design submitted in the original application. As stated in your letter, these proposed changes do not involve increases of any air emissions from the turbines covered by these permits. Air dispersion modeling of NO_X emissions has been performed using the U.S. EPA's ISCLT2 model to evaluate the relative effect on air quality impacts of these proposed changes. No adverse air quality impacts will occur with these. The Department has evaluated these requests and has agreed to the changes as proposed.

Attachment to be Incorporated:

Mr. Duane Pierce's letter dated November 23, 1993.

Printed on recycled paper.

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;
(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 amendment must be attached to construction Permit No. AC 09-229441 and AC 50-229440 and shall become a part of each permit.

Sincerely,

Howard L Rhodes

Howard L. Rhodes
Director
Division of Air Resources
Management

HLR/TH/bjb

Attachment to be Incorporated:

Mr. Duane Pierce's letter of November 23, 1993.

cc: Isidore Goldman - SED
Bill Thomas - SWD

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 12/22/93 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 12/22/93
Clerk Date

Florida Gas Transmission Company

P. O. Box 1188, Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
NOV 24 1993
Division of Air
Resources Management

November 23, 1993

Mr. Clair Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Air Permit AC 09-229441
Natural Gas Compressor Station No. 26, Citrus County

Dear Mr. Fancy:

As discussed in a telephone conversation with Ms. Teresa Heron of your staff on November 17, Florida Gas Transmission Company's (FGT) Phase III Expansion Engineering Group has refined the design of the Phase III expansion for Compressor Station No. 26 and FGT proposes to make some desirable minor changes from the design submitted in the original air permit application. FGT understands that these changes are minor and of an administrative nature and that they do not require public notice or a lengthy review period.

<u>It is extremely important to FGT that the start of construction not be delayed</u>. If the FDEP should decide that either a public notice or lengthy review is required for these proposed changes, then FGT will not make them.

These proposed changes do <u>not</u> involve increases in any air emissions or air quality impacts from the turbine covered by this permit. Additionally, air dispersion modeling of NO_x emissions has been performed using the U.S. EPA's ISCLT2 model to evaluate the relative effect on air quality impacts of these proposed changes. The modeling demonstrates that these proposed changes will result in an improvement in the already minimal air quality impacts of this project.

CHANGES

The proposed changes are described below.

1. Both the new Compressor Building and the Auxiliary Building will have increased heights. Since these increases could cause changes in air quality impacts, the height of

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the Compressor and Emergency Generator stacks are also being changed. The original and new heights are given in the table below.

New Height Changes

BUILDING	ORIGINAL	NEW
COMPRESSOR BUILDING	30' (9.14 m)	35' (10.67 m)
AUXILIARY BUILDING	18.67' (5.69 m)	19.75' (6.02 m)
EM. GENERATOR STACK	20' (6.10 m)	33' (10.06 m)
COMPRESSOR STACK	55' (16.76 m)	63' (19.20 m)

3. The Emergency Generator size needs to be increased and will be changed from 102 hp to 184 hp. The unit will still not be operated more than 400 hours per year. NO_x, CO and VOC lb/hr emission rates will all decrease slightly. Some other parameters will be changed. Since some of these changes have the potential to change impacts, the stack height has been increased. The changes are summarized in the table below. Vendor information is provided in Attachment B.

Revised Emergency Generator Parameters

PARAMETER	ORIGINAL	NEW
Size (hp)	102	184
Stack Height (ft)	20 (6.10 m)	33 (10.06 m)
Stack Diameter (ft)	0.29 (0.09 m)	0.33' (0.10 m)
Exhaust Flow Rate (acfm)	580 (16.42 m^3)	1250 (35.39 m^3)
Exhaust Temperature (° F)	1150 (621° C)	NO CHANGE
NO_x Emissions (lb/hr)	1.82	1.78
CO Emissions (lb/hr)	0.63	0.61
VOC Emissions (lb/hr)	0.025	0.024

3. Changes have been made to the original plot plan. A new one is provided in Attachment B.

DISPERSION MODELING

Air dispersion modeling was performed using ISCLT2 to compare the relative effects on air quality impacts of these changes. The same meteorology used in the original application (Tampa, upper and surface data, 1982-1986) was used for this dispersion modeling. The model input files used in the original application were modified to reflect the proposed changes as follows:

1) Downwash parameters were changed to reflect the new Compressor and Auxiliary Building heights, the new Emergency Generator and compressor stack heights and the new configuration shown in the plot plan. The same input file and downwash program (Bowman Engineering's GEP Program) that were used in the original application were used to generate downwash parameters for the modeling of these proposed changes.

2) Stack coordinates and stack parameters were changed to reflect the new values.

3) The receptor grids were revised to meet the limitations of the ISCLT2 version used. This version limits the number of receptors to 500. Since the original modeling used receptor grids larger than 500, the grid sizes had to be reduced. The reduced grids were located so that they included the receptors with the highest impacts in the original application modeling.

The maximum concentration resulting from the ISCLT2 modeling decreased from 0.192 ug/m^3 with our permitted stack and building heights to 0.165 ug/m^3 with the new values. As stated above, this indicates that the proposed changes should result in even lower ambient air quality impacts than the already predicted low impacts. The output from the modeling runs and the downwash program and a computer disk with both input and output files have been sent to Mr. Cleveland Holladay of the FDEP under separate cover.

NO_x Air Dispersion Modeling Results

PARAMETERS	MAXIMUM OFFSITE CONCENTRATION (ug/m^3)	YEAR	RECEPTOR LOCATION	
			East meters	North meters
Original	0.192	1982	-100	-100
Proposed	0.165	1985	0	100

In summary, the changes in the Emergency Generator stack parameters, the Compressor and Auxiliary Building heights, and the stack heights should result in improved air quality impacts compared to what was proposed in FGT's original application.

Again, FGT would like to restate that it is extremely important that these proposed changes do not delay start of construction for this project and that FGT will not make these changes if that is the case.

Should you have any questions concerning these changes or need additional information, please do not hesitate to call me at (713) 853-3569.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company

cc: Carlon Nelson
William Osborne
Allan Weatherford
Files

FILE: 26FDER03.LTR

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
NOV 24 1993
Division of Air
Resources Management

November 23, 1993

Mr. Clair Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Air Permit AC 09-229441
Natural Gas Compressor Station No. 26, Citrus County

Dear Mr. Fancy:

As discussed in a telephone conversation with Ms. Teresa Heron of your staff on November 17, Florida Gas Transmission Company's (FGT) Phase III Expansion Engineering Group has refined the design of the Phase III expansion for Compressor Station No. 26 and FGT proposes to make some desirable minor changes from the design submitted in the original air permit application. FGT understands that these changes are minor and of an administrative nature and that they do not require public notice or a lengthy review period.

It is extremely important to FGT that the start of construction not be delayed. If the FDEP should decide that either a public notice or lengthy review is required for these proposed changes, then FGT will not make them.

These proposed changes do not involve increases in any air emissions or air quality impacts from the turbine covered by this permit. Additionally, air dispersion modeling of NO_x emissions has been performed using the U.S. EPA's ISCLT2 model to evaluate the relative effect on air quality impacts of these proposed changes. The modeling demonstrates that these proposed changes will result in an improvement in the already minimal air quality impacts of this project.

CHANGES

The proposed changes are described below.

1. Both the new Compressor Building and the Auxiliary Building will have increased heights. Since these increases could cause changes in air quality impacts, the height of

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the Compressor and Emergency Generator stacks are also being changed. The original and new heights are given in the table below.

New Height Changes

BUILDING	ORIGINAL	NEW
COMPRESSOR BUILDING	30' (9.14 m)	35' (10.67 m)
AUXILIARY BUILDING	18.67' (5.69 m)	19.75' (6.02 m)
EM. GENERATOR STACK	20' (6.10 m)	33' (10.06 m)
COMPRESSOR STACK	55' (16.76 m)	63' (19.20 m)

3. The Emergency Generator size needs to be increased and will be changed from 102 hp to 184 hp. The unit will still not be operated more than 400 hours per year. NO_x, CO and VOC lb/hr emission rates will all decrease slightly. Some other parameters will be changed. Since some of these changes have the potential to change impacts, the stack height has been increased. The changes are summarized in the table below. Vendor information is provided in Attachment B.

Revised Emergency Generator Parameters

PARAMETER	ORIGINAL	NEW
Size (hp)	102	184
Stack Height (ft)	20 (6.10 m)	33 (10.06 m)
Stack Diameter (ft)	0.29 (0.09 m)	0.33' (0.10 m)
Exhaust Flow Rate (acfm)	580 (16.42 m^3)	1250 (35.39 m^3)
Exhaust Temperature (° F)	1150 (621° C)	NO CHANGE
NO_x Emissions (lb/hr)	1.82	1.78
CO Emissions (lb/hr)	0.63	0.61
VOC Emissions (lb/hr)	0.025	0.024

3. Changes have been made to the original plot plan. A new one is provided in Attachment B.

DISPERSION MODELING

Air dispersion modeling was performed using ISCLT2 to compare the relative effects on air quality impacts of these changes. The same meteorology used in the original application (Tampa, upper and surface data, 1982-1986) was used for this dispersion modeling. The model input files used in the original application were modified to reflect the proposed changes as follows:

1) Downwash parameters were changed to reflect the new Compressor and Auxiliary Building heights, the new Emergency Generator and compressor stack heights and the new configuration shown in the plot plan. The same input file and downwash program (Bowman Engineering's GEP Program) that were used in the original application were used to generate downwash parameters for the modeling of these proposed changes.

2) Stack coordinates and stack parameters were changed to reflect the new values.

3) The receptor grids were revised to meet the limitations of the ISCLT2 version used. This version limits the number of receptors to 500. Since the original modeling used receptor grids larger than 500, the grid sizes had to be reduced. The reduced grids were located so that they included the receptors with the highest impacts in the original application modeling.

The maximum concentration resulting from the ISCLT2 modeling decreased from 0.192 ug/m^3 with our permitted stack and building heights to 0.165 ug/m^3 with the new values. As stated above, this indicates that the proposed changes should result in even lower ambient air quality impacts than the already predicted low impacts. The output from the modeling runs and the downwash program and a computer disk with both input and output files have been sent to Mr. Cleveland Holladay of the FDEP under separate cover.

NO_x Air Dispersion Modeling Results

PARAMETERS	MAXIMUM OFFSITE CONCENTRATION (ug/m^3)	YEAR	RECEPTOR LOCATION	
			East meters	North meters
Original	0.192	1982	-100	-100
Proposed	0.165	1985	0	100

In summary, the changes in the Emergency Generator stack parameters, the Compressor and Auxiliary Building heights, and the stack heights should result in improved air quality impacts compared to what was proposed in FGT's original application.

Again, FGT would like to restate that it is extremely important that these proposed changes do not delay start of construction for this project and that FGT will not make these changes if that is the case.

Should you have any questions concerning these changes or need additional information, please do not hesitate to call me at (713) 853-3569.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company

cc: Carlon Nelson
William Osborne
Allan Weatherford
Files

FILE: 26FDER03.LTR

ATTACHMENT B

REVISED PLOT PLAN

United States Department of the Interior

TAKE PRIDE IN AMERICA

FISH AND WILDLIFE SERVICE
75 Spring Street, S.W.
Atlanta, Georgia
30303

August 3, 1993

RECEIVED
AUG 0 8 1993
Division of Air
Resources Management

Mr. Clair Fancy
Chief, Bureau of Air Regulation
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399

Dear Mr. Fancy:

We have reviewed the Prevention of Significant Deterioration permit application that you forwarded to us regarding Florida Gas Transmission Company's (FGTC) proposed expansion of its existing pipeline system. The expansion will include the installation of a new 12,600 bhp compressor engine at Compressor Station No. 15, located in Taylor County, near Perry, Florida. Compressor Station No. 15 is located approximately 36 km east of St. Marks Wilderness Area (WA) and 130 km southwest of Okefenokee WA, Class I air quality areas administered by the Fish and Wildlife Service.

The additional natural gas fired engine at Compressor Station No. 15 will result in a significant increase in nitrogen oxide (NO_x) emissions (70.7 tons per year) and a slight increase in emissions of sulfur dioxide, carbon monoxide, and volatile organic compounds. FGTC performed a modeling analysis to calculate concentrations of NO_2 out to 30 km from the facility. The results showed that potential NO_2 annual concentrations in the direction (west and northeast) of the Class I areas were very low (0.01 micrograms per cubic meter). Since the closest Class I area (St. Marks WA) is 36 km west of the site, impacts there and at the more distant Okefenokee WA are also expected to be very low. Therefore, the proposed project should not significantly impact any sensitive resources at these Class I areas.

Thank you for providing us the opportunity to comment on FGTC's permit application. If we can be of further assistance, please contact Ms. Ellen Porter of our Air Quality Branch in Denver at 303/969-2071.

Sincerely yours,

James W. Pulliam, Jr.
Regional Director

cc: J. Heron
K. Zhang
J. Cole, NE Dist
G. Harper, EPA
B. Andrews, ENSR

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
AUG 12 1993
Division of Air
Resources Management

August 11, 1993

Mr. Clair Fancy
Chief, Bureau of Air Regulations
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Changes to FGT Phase III Expansion Project Air Permits

Draft Air Permit AC 62-229319 / PSD-FL-202
Natural Gas Compressor Station No. 15, Taylor County

Draft Air Permit AC 05-229322
Natural Gas Compressor Station No. 19, Brevard County

Draft Air Permit AC 56-230129 / PSD-FL-203
Natural Gas Compressor Station No. 20, St. Lucie County

Draft Air Permit AC 50-229440
Natural Gas Compressor Station No. 21, Palm Beach County

Draft Air Permit AC 09-229441
Natural Gas Compressor Station No. 26, Citrus County

Draft Air Permit AC 29-228821
Natural Gas Compressor Station No. 30, Hillsborough County

Dear Mr. Fancy:

We respectfully propose the following changes to each of the above referenced draft permits.

Item A

We propose increasing the maximum heat inputs and maximum natural gas consumption rates for each engine (Specific condition #5). We are proposing this change as a result of test results on our Phase II engines which indicate higher values than those provided by the engine manufacturers and used in the permits for Phase II engines. The values proposed in our applications for our Phase III engines are also based on values provided by the manufacturers. We believe it is necessary to increase these values for our Phase III engines, in order to prevent potential future compliance problems. We propose to increase these values by 20 %. We believe the new values will be more correct. Since the SO_2 and PM emission rates are based on fuel consumption, we are proposing to increase these also. These changes are provided in the attached table.

Item B

The emission limits in the permits (Specific Condition #1) represent the emission rates at 100% load conditions. We propose adding a statement or footnote to this emission limit table that indicates this.

Item C

On the same emission limit table the Emission Factor for SO_2 is given as "10 gr/100scf." This suggests that the factor is based upon 10 gr of SO_2 when it is actually sulfur. We suggest the following wording be used: "100 gr S/100/scf" to avoid confusion.

Item D

Specific Condition #12 (#11 for AC 56-230129 / PSD-FL-203 Compressor Station No. 20 and Ac 05-229322 Compressor Station No. 19) requires the source to be tested while operating "between 95% and 100% of maximum capacity." The permits for our Phase II engines require testing between 90% and 100% of maximum capacity. Due to the nature of our operations, it is sometimes difficult to reach even the 90% load on our engines when a test is scheduled. Raising this minimum level to 95% will make this a greater problem. We therefore request that this condition be changed to require testing "between 90% and 100% of maximum capacity" as required by our other permits.

Again FGT appreciates this opportunity to comment on these permit conditions and your consideration of our proposed changes. If you have any questions or need additional information, please do not hesitate to call me at (713) 853-3569.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company

cc: Carlon Nelson
William Osborne
Allan Weatherford
Barry Andrews - ENSR
Files

FILE: 00FDER01.LTR

T. Heron
K. Zhang
J. Cole, NE Dist.
A. Zahm, C Dist.
B. Thomas, SW Dist.
I. Goldman, SE Dist.

ORIGINALLY PROPOSED VALUES

STATION	MAXIMUM HEAT INPUT (MMBtu/hr)	MAXIMUM GAS CONSUMPTION (MMscf/hr)	SO_2 EMISSIONS		PM/PM_{10} EMISSIONS	
			lb/hr	T/yr	lb/hr	T/yr
15	109.66	0.1054	3.01	13.19	0.53	2.31
19	38.3	0.0368	0.94	4.12	0.17	0.74
20	27.8	0.0267	0.70	3.33	0.13	0.57
21	59.60	0.057	1.64	7.18	0.29	1.26
26	59.60	0.057	1.64	7.18	0.29	1.26
30	13.13	0.013	0.37	1.62	0.064	0.28

NEW VALUES

STATION	MAXIMUM HEAT INPUT (MMBtu/hr)	MAXIMUM GAS CONSUMPTION (MMscf/hr)	SO_2 EMISSIONS		PM/PM_{10} EMISSIONS	
			lb/hr	T/yr	lb/hr	T/yr
15	131.59	0.1265	3.61	15.83	0.64	2.77
19	45.96	0.0442	1.13	4.94	0.20	0.89
20	33.36	0.0320	0.84	4.00	0.16	0.68
21	71.52	0.0684	1.97	8.62	0.35	1.51
26	71.52	0.0684	1.97	8.62	0.35	1.51
30	15.76	0.0156	0.44	1.94	0.077	0.34

FILE: 00FDER01.LTR

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

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AUG 2 1993

Division of Air
Resources Management

July 30, 1993

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

Dear Mr. Fancy:

Upon reviewing the Technical Evaluations and Preliminary Determinations for the proposed natural gas compressor engines located in Palm Beach County (Station No. 21) and Citrus County (Station No. 26), it was discovered that our draft permits contained the nominal lb/hr emission rates rather than the maximum emission rates which were presented in the Applications to Operate/Construct Air Pollution Sources. Further review indicates that this error also holds true for draft permits which have been received for proposed natural gas compressor engines located in Taylor County (Station No. 20).

Florida Gas Transmission Company (FGTC) requests that the permits be amended to include the maximum lb/hr emission levels for the natural gas compressor engines addressed above as follows:

	Pollutant (lb/hr)					
Station	No$_x$	CO	VOC	TSP	PM$_{10}$	SO$_2$
No. 15 - Taylor County (AC 62-229319)	18.66	13.49	0.76	0.53	0.53	3.01
No. 19 - Brevard County (AC 05-229322)	79.38	45.20	16.57	0.19	0.19	1.05
No. 20 - St. Lucie County (AC 56-230129)	52.92	26.46	12.35	0.15	0.15	0.84
No. 21 - Palm Beach County (AC 50-229440)	9.15	6.64	0.38	0.29	0.29	1.64
No. 26 -Citrus County (AC 09-229441)	9.15	6.64	0.38	0.29	0.29	1.64

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These changes do not affect the TPY limits which are based on the nominal lb/hr emission rates. FGTC also discovered that for Station 21, the nominal lb/hr emission rates presented in Table 2-2 of our application were inadvertently transferred to the maximum lb/hr column on page 4A of the Application to Operate/Construct Air Pollution Sources. To resolve this error, FGTC has included a corrected page 4A and has had this transmittal letter signed and sealed by Barry Andrews (ENSR Consulting and Engineering) who is representing FGTC as the professional engineer of record. This procedure is consistent with instructions given by Mr. Preston Lewis of your bureau.

Please note that this letter is not intended to address all of FGTC's comments for Stations 20, 21 and 26. FGTC is presently reviewing the Technical Evaluations and Preliminary Determinations for each of these Stations and will be providing additional comments in the near future.

FGTC appreciates the opportunity to provide the Bureau of Air Regulation with these comments. Should you have any questions, please contact Duane Pierce at (713) 853-3569.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company

Barry D. Andrews

Barry Andrews, P.E.
ENSR Consulting and Engineering

Enclosures

cc:	Carlon Nelson	EB0463
	William R. Osborne	EB0365
	Files	

VDP:meb
pierce\corres\073093

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): ______________________

2. Product Weight (lbs/hr): ______________________

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Emission Point 2101

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
NO_x	9.15	39.05			9.15	39.05	
CO	6.64	28.29			6.64	28.29	
NMHC	.38	1.62			.38	1.62	
SO_2	1.64	7.18			1.64	7.18	
PM	.29	1.26			.29	1.26	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

particulate and sulfur dioxide are calculated based on heat input

RECEIVED

JUL 30 1993

Division of Air
Resources Management

July 29, 1993

Ms. Teresa Heron
Air Permitting and Standards
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Draft Air Permit AC 50-229441
Natural Gas Compressor Station No. 26, Citrus County

Dear Ms. Heron:

We have reviewed the draft permit provisions for the proposed new turbines at our new Compressor Station No. 21. We respectfully propose the following modification to these specific permit conditions.

SPECIFIC CONDITION:

Maximum heat input
Natural gas consumption

5. 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 0.057 MMCF/hr~~
   - Maximum heat input shall not exceed 59.60 MMBtu/hr

   OR

   - Maximum natural gas consumption shall not exceed 0.1054 MMSCF/hr (based on a fuel heating value of 1040 Btu/SCF)
   - Maximum heat input shall not exceed 59.60 MMBtu/hr

<u>Rationale:</u> The maximum natural gas consumption value will vary depending on what is used as the heating value of the natural gas. The maximum natural gas consumption value in MMSCF/hr is calculated from the maximum heat input value in Btu/SCF. The value calculated

for the maximum natural gas consumption is dependent on the number used for the actual heating value of the gas which can vary. In the application a value of 1040 Btu/SCF was used in this calculation; however, at any point in time the actual heating value of the natural gas may differ from 1040 Btu/SCF.

Since the maximum natural gas consumption is dependent on the maximum heat input, it is not necessary to specify the maximum natural gas consumption value in the permit condition. If the maximum natural gas consumption value is specified in the permit condition, then the basis for the value should be stated.

FGT will also comment on the maximum lbs/hr emission rates under Specific Condition #1 in separate correspondence.

FGT appreciates this opportunity to comment on these permit conditions and your consideration of our proposed changes. If you have any questions or need additional information, please do not hesitate to call me at (713) 853-3569.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company

cc: William Osborne - FGT
Carlon Nelson - FGT
File Phase III Air CS 26

FILE: 26FDER02.LTR

Florida Gas Transmission Company

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

RECEIVED
JUL 27 1993
Division of Air
Resources Management

July 21, 1993

Certified Mail

Mr. Clair Fancy, P.E.
Florida Department of
Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

RE: Intent to Issue Permit
Proof of Publication - Air Permit
Florida Gas Transmission Company
Compressor Station 26, Lecanto, Florida

An affidavit is attached as proof of public notice for the publication above-referenced permit.

Sincerely,

Allan Weatherford

Allan Weatherford, REM
Compliance Environmentalist

bc
aw0719rg
encl

cc: Raymond Young
Mike Teal
David Gaines
Duane Pierce
J. Heron
B. Thomas, SW Dist.

An ENRON/SONAT Affiliate

PROOF OF PUBLICATION

THE OCALA STAR-BANNER

Published—Daily

OCALA, MARION COUNTY, FLORIDA

STATE OF FLORIDA,
COUNTY OF MARION.

Before me the undersigned authority personally appeared Butch Peiker, who on oath says that he is Classified Manager of the Ocala Star-Banner, a daily newspaper published at Ocala, in Marion County, Florida; that the attached copy of advertisement, being a notice in the matter of #7F014 Notice of Intent to Issue Permit

__________ in the __________ Court,

was published in said newspaper in the issues of July 17, 1993

Affiant further says that the said THE OCALA STAR-BANNER is a daily newspaper published at Ocala, in said Marion County, Florida, and that the said newspaper has heretofore been continuously published in said Marion County, Florida, daily, and has been entered as second class mail matter at the post office in Ocala, in said Marion 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 cooperation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Butch Peiker

Sworn to and subscribed before me this 19th day of July, A.D., 1993

(Seal)

Gloria Thomas

Notary Public

Gloria Thomas
My Comm. Expires Nov. 23, 1996
CC 242726

RECEIVED
JUL 22 1993
TECH OPERATIONS

STATE OF FLORIDA
DEPARTMENT OF
ENVIRONMENTAL PROTECTION

NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Protection gives notice of its intent to issue a permit to Florida Gas Transmission Company, Post Office Box 1188, Houston, Texas 77251-1188, to install one natural gas fired turbine. The Company's facility is located 2 miles northwest of the town of Lecanto along State Route 44 in Citrus County, Florida. A determination of Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

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, 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 consitute 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; (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; 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 Notice. 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 publication of this notice 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.

The application 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:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Park Courtyard
Tallahassee, Florida

Department of Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619-8218

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

No. 7F014 — July 17, 1993

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
JUL 14 1993
Division of Air
Resources Management

July 13, 1993

Ms. Teresa Heron
Air Permitting and Standards
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Air Permit Application
Natural Gas Compressor Station No. 26, Citrus County

Dear Ms. Heron:

As discussed with you on the phone on July 8, our Project Engineering Group has decided that a change will be necessary from the design submitted in our original application for a new Compressor Station No. 26 to be located in Citrus County. There is one modification.

1. Due to the discovery that the high velocity in the exhaust stacks on the new turbines will create an unacceptable noise level, we must increase the diameter of these stacks from 40" (1.02 m) to 54" (1.37 m). To compensate for the potential increase in air quality impacts due to the decreased velocity, we are also increasing the height of the stacks from 50 feet (15.24 m) to 55 feet (16.76 m). Screening modeling was performed using the U.S. EPA's SCREEN model for a stack with our original parameters and then with these new parameters. Full meteorology was used as well as downwash using the compressor building's dimensions. The maximum concentration resulting from the SCREEN modeling decreased from 23.11 ug/m^3 at 92 m with the old stack dimensions to 19.52 ug/m^3 at 92 m with the new stack dimensions. This indicates that the proposed changes should result in even lower ambient air quality impacts than the already predicted minimal impacts. The output from these two modeling runs are attached as Attachments A and B.

In summary, the changes in the compressor engine stack parameters should result in improved air quality impacts compared to what was proposed in our original application.

Should you have any additional questions concerning this change or need additional information, please do not hesitate to call me at (713) 853-3569.

Sincerely,

V. Duane Pierce

V. Duane Pierce, Ph.D.
Air Quality Supervisor
Phase III Expansion Project
Florida Gas Transmission Company

cc: Carlon Nelson
William Osborne
Allan Weatherford
File Phase III Air CS 26

FILE: 26LDEQ01.LTR

ATTACHMENT A

SCREEN MODELING
ORIGINAL STACK PARAMETERS

```
                                                                    07-12-93
                                                                    15:43:07
 *** SCREEN-1.1 MODEL RUN ***
 *** VERSION DATED  88300 ***

C/S 26 Original Stack Diameter 40"  Original Stack Height 50'     26_40_50.dta

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE              =    POINT
   EMISSION RATE (G/S)      =    1.000
   STACK HEIGHT (M)         =    15.24
   STK INSIDE DIAM (M)      =     1.02
   STK EXIT VELOCITY (M/S)=    55.32
   STK GAS EXIT TEMP (K)    =   763.71
   AMBIENT AIR TEMP (K)     =   293.00
   RECEPTOR HEIGHT (M)      =      .00
   IOPT (1=URB,2=RUR)       =     2
   BUILDING HEIGHT (M)      =     9.14
   MIN HORIZ BLDG DIM (M) =    12.19
   MAX HORIZ BLDG DIM (M) =    54.86

*** FULL METEOROLOGY ***

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

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

  DIST     CONC              U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)    STAB   (M/S)  (M/S)    (M)   HT (M)  Y (M)   Z (M)  DWASH
-------  ----------   ----   -----  -----  ------  ------  ------  ------  -----
     1.   .0000         0      .0     .0      .0      .0      .0      .0    NA
   100.   22.34         4    20.0   21.3  5000.0    22.5     8.5    11.5    HS
   200.   12.72         4    20.0   21.3  5000.0    26.6    15.9    14.8    HS
   300.   8.946         4    20.0   21.3  5000.0    30.1    23.0    18.0    HS
   400.   6.848         4    20.0   21.3  5000.0    33.3    29.9    21.1    HS
   500.   5.489         4    20.0   21.3  5000.0    36.1    36.6    24.1    HS
   600.   4.536         4    20.0   21.3  5000.0    38.8    43.2    27.0    HS
   700.   3.832         4    20.0   21.3  5000.0    41.4    49.8    29.7    HS
   800.   3.601         4    20.0   21.3  5000.0    41.6    56.1    32.3    HS
   900.   3.275         4    20.0   21.3  5000.0    41.6    62.3    32.9    HS
  1000.   3.070         4    20.0   21.3  5000.0    41.6    68.5    34.9    HS
  1100.   2.870         4    20.0   21.3  5000.0    41.6    74.7    36.8    HS
  1200.   2.747         4    15.0   16.0  4800.0    50.4    81.1    39.3    HS
  1300.   2.624         4    15.0   16.0  4800.0    50.4    87.1    41.1    HS
  1400.   2.501         4    15.0   16.0  4800.0    50.4    93.1    42.8    HS
  1500.   2.381         4    15.0   16.0  4800.0    50.4    99.1    44.5    HS
  1600.   2.267         4    15.0   16.0  4800.0    50.4   105.0    46.2    HS
  1700.   2.157         4    15.0   16.0  4800.0    50.4   110.9    47.9    HS
  1800.   2.054         4    15.0   16.0  4800.0    50.4   116.7    49.5    HS
  1900.   1.957         4    15.0   16.0  4800.0    50.4   122.5    51.1    HS
  2000.   1.908         4    10.0   10.7  3200.0    68.0   128.8    52.4    NO
  2100.   1.861         4    10.0   10.7  3200.0    68.0   134.6    53.9    NO
  2200.   1.812         4    10.0   10.7  3200.0    68.0   140.3    55.4    NO
  2300.   1.763         4    10.0   10.7  3200.0    68.0   146.0    56.9    NO
  2400.   1.714         4    10.0   10.7  3200.0    68.0   151.7    58.4    NO
  2500.   1.666         4    10.0   10.7  3200.0    68.0   157.3    59.8    NO
  2600.   1.618         4    10.0   10.7  3200.0    68.0   162.9    61.3    NO
  2700.   1.571         4    10.0   10.7  3200.0    68.0   168.5    62.7    NO
```

```
  2800.   1.526      4   10.0   10.7  3200.0    68.0   174.1    64.1    NO
  2900.   1.495      5    3.0    3.5  5000.0   101.9   136.2    48.3    NO
  3000.   1.524      5    3.0    3.5  5000.0   101.9   140.3    49.0    NO
  3500.   1.681      5    2.0    2.3  5000.0   114.5   161.3    54.1    NO
  4000.   1.794      5    2.0    2.3  5000.0   114.5   181.3    57.3    NO
  4500.   1.894      5    1.0    1.2  5000.0   140.3   202.3    63.8    NO
  5000.   1.979      5    1.0    1.2  5000.0   140.3   221.8    66.2    NO
  5500.   2.044      5    1.0    1.2  5000.0   140.3   241.1    68.5    NO
  6000.   2.091      5    1.0    1.2  5000.0   140.3   260.2    70.8    NO
  6500.   2.123      5    1.0    1.2  5000.0   140.3   279.2    73.0    NO
  7000.   2.142      5    1.0    1.2  5000.0   140.3   298.1    75.1    NO
  7500.   2.151      5    1.0    1.2  5000.0   140.3   316.8    77.1    NO
  8000.   2.152      5    1.0    1.2  5000.0   140.3   335.4    79.2    NO
  8500.   2.146      5    1.0    1.2  5000.0   140.3   353.8    81.1    NO
  9000.   2.134      5    1.0    1.2  5000.0   140.3   372.2    83.0    NO
  9500.   2.117      5    1.0    1.2  5000.0   140.3   390.4    84.9    NO
 10000.   2.097      5    1.0    1.2  5000.0   140.3   408.5    86.8    NO
 15000.   1.809      6    1.0    1.3  5000.0   116.1   389.5    62.0    NO
 20000.   1.664      6    1.0    1.3  5000.0   116.1   501.8    66.8    NO
 25000.   1.528      6    1.0    1.3  5000.0   116.1   610.4    71.0    NO
 30000.   1.408      6    1.0    1.3  5000.0   116.1   716.2    74.6    NO
 40000.   1.193      6    1.0    1.3  5000.0   116.1   920.7    79.9    NO
 50000.   1.037      6    1.0    1.3  5000.0   116.1  1117.8    84.3    NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND     1. M:
    92.   23.11      4   20.0   21.3  5000.0    22.4     7.9    11.2    HS

 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

 *** CAVITY CALCULATION - 1 ***       *** CAVITY CALCULATION - 2 ***
  CONC (UG/M**3)       =    .0000      CONC (UG/M**3)       =    .0000
  CRIT WS @10M (M/S)   =    99.99      CRIT WS @10M (M/S)   =    99.99
  CRIT WS @ HS (M/S)   =    99.99      CRIT WS @ HS (M/S)   =    99.99
  DILUTION WS (M/S)    =    99.99      DILUTION WS (M/S)    =    99.99
  CAVITY HT (M)        =    11.73      CAVITY HT (M)        =     9.14
  CAVITY LENGTH (M)    =    42.38      CAVITY LENGTH (M)    =    16.00
  ALONGWIND DIM (M)    =    12.19      ALONGWIND DIM (M)    =    54.86

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S.  CONC SET = 0.0

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************

 CALCULATION         MAX CONC    DIST TO   TERRAIN
  PROCEDURE         (UG/M**3)    MAX (M)    HT (M)
--------------     -----------   -------   -------
SIMPLE TERRAIN       23.11           92.        0.


***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
***************************************************
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ATTACHMENT B

SCREEN MODELING
NEW STACK PARAMETERS

```
                                                                    07-12-93
                                                                    15:44:01
 *** SCREEN-1.1 MODEL RUN ***
 *** VERSION DATED  88300 ***

C/S 26 New Stack Diameter 54"  New Stack Height 55'                26_54_55.dta

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE               =    POINT
   EMISSION RATE (G/S)       =    1.000
   STACK HEIGHT (M)          =    16.76
   STK INSIDE DIAM (M)       =     1.37
   STK EXIT VELOCITY (M/S)=       30.36
   STK GAS EXIT TEMP (K)     =   763.71
   AMBIENT AIR TEMP (K)      =   293.00
   RECEPTOR HEIGHT (M)       =      .00
   IOPT (1=URB,2=RUR)        =     2
   BUILDING HEIGHT (M)       =     9.14
   MIN HORIZ BLDG DIM (M)  =      12.19
   MAX HORIZ BLDG DIM (M)  =      54.86

*** FULL METEOROLOGY ***

**********************************
*** SCREEN AUTOMATED DISTANCES ***
**********************************

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

  DIST     CONC              U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)    STAB   (M/S)  (M/S)   (M)    HT (M)  Y (M)   Z (M)  DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
      1.   .0000       0      .0     .0      .0      .0      .0      .0    NA
    100.   18.40       4    20.0   21.6  5000.0    23.6     8.4    11.5    HS
    200.   10.93       4    20.0   21.6  5000.0    27.7    15.9    14.8    HS
    300.   7.981       4    20.0   21.6  5000.0    31.2    23.0    18.0    HS
    400.   6.250       4    20.0   21.6  5000.0    34.3    29.9    21.1    HS
    500.   5.087       4    20.0   21.6  5000.0    37.1    36.6    24.1    HS
    600.   4.250       4    20.0   21.6  5000.0    39.8    43.2    26.9    HS
    700.   3.620       4    20.0   21.6  5000.0    42.3    49.7    29.7    HS
    800.   3.424       4    20.0   21.6  5000.0    42.5    56.1    32.3    HS
    900.   3.119       4    20.0   21.6  5000.0    42.5    62.3    32.9    HS
   1000.   2.934       4    20.0   21.6  5000.0    42.5    68.5    34.9    HS
   1100.   2.752       4    20.0   21.6  5000.0    42.5    74.7    36.8    HS
   1200.   2.617       4    15.0   16.2  4800.0    51.4    81.0    39.2    HS
   1300.   2.507       4    15.0   16.2  4800.0    51.4    87.1    41.0    HS
   1400.   2.396       4    15.0   16.2  4800.0    51.4    93.1    42.8    HS
   1500.   2.286       4    15.0   16.2  4800.0    51.4    99.0    44.5    HS
   1600.   2.180       4    15.0   16.2  4800.0    51.4   105.0    46.2    HS
   1700.   2.079       4    15.0   16.2  4800.0    51.4   110.8    47.9    HS
   1800.   1.982       4    15.0   16.2  4800.0    51.4   116.7    49.5    HS
   1900.   1.929       4    10.0   10.8  3200.0    68.7   123.0    52.3    HS
   2000.   1.880       4    10.0   10.8  3200.0    68.7   128.8    53.8    HS
   2100.   1.829       4    10.0   10.8  3200.0    68.7   134.5    55.3    HS
   2200.   1.778       4    10.0   10.8  3200.0    68.7   140.3    56.8    HS
   2300.   1.727       4    10.0   10.8  3200.0    68.7   146.0    58.3    HS
   2400.   1.678       4    10.0   10.8  3200.0    68.7   151.6    59.7    HS
   2500.   1.629       4    10.0   10.8  3200.0    68.7   157.3    61.2    HS
   2600.   1.581       4    10.0   10.8  3200.0    68.7   162.9    62.6    HS
   2700.   1.534       4    10.0   10.8  3200.0    68.7   168.5    64.0    HS
```

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   2800.   1.489         4    10.0    10.8  3200.0    68.7   174.1    65.4    HS
   2900.   1.445         4    10.0    10.8  3200.0    68.7   179.7    66.8    HS
   3000.   1.426         5     3.0     3.6  5000.0   102.5   140.3    48.8    NO
   3500.   1.582         5     2.0     2.4  5000.0   114.9   161.2    54.0    NO
   4000.   1.696         5     2.0     2.4  5000.0   114.9   181.2    57.1    NO
   4500.   1.799         5     1.0     1.2  5000.0   140.4   202.2    63.5    NO
   5000.   1.885         5     1.0     1.2  5000.0   140.4   221.7    66.0    NO
   5500.   1.950         5     1.0     1.2  5000.0   140.4   241.0    68.3    NO
   6000.   1.998         5     1.0     1.2  5000.0   140.4   260.2    70.6    NO
   6500.   2.031         5     1.0     1.2  5000.0   140.4   279.2    72.8    NO
   7000.   2.052         5     1.0     1.2  5000.0   140.4   298.0    74.9    NO
   7500.   2.063         5     1.0     1.2  5000.0   140.4   316.8    77.0    NO
   8000.   2.065         5     1.0     1.2  5000.0   140.4   335.3    79.0    NO
   8500.   2.061         5     1.0     1.2  5000.0   140.4   353.8    81.0    NO
   9000.   2.050         5     1.0     1.2  5000.0   140.4   372.1    82.9    NO
   9500.   2.036         5     1.0     1.2  5000.0   140.4   390.3    84.8    NO
  10000.   2.017         5     1.0     1.2  5000.0   140.4   408.5    86.6    NO
  15000.   1.726         5     1.0     1.2  5000.0   140.4   584.5   101.9    NO
  20000.   1.578         6     1.0     1.3  5000.0   115.9   501.7    66.6    NO
  25000.   1.451         6     1.0     1.3  5000.0   115.9   610.4    70.8    NO
  30000.   1.337         6     1.0     1.3  5000.0   115.9   716.1    74.4    NO
  40000.   1.134         6     1.0     1.3  5000.0   115.9   920.7    79.7    NO
  50000.   .9860         6     1.0     1.3  5000.0   115.9  1117.8    84.1    NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND      1. M:
     92.   19.52         4    20.0    21.6  5000.0    23.2     7.9    11.2    HS

 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

 *** CAVITY CALCULATION - 1 ***        *** CAVITY CALCULATION - 2 ***
  CONC (UG/M**3)         =    .0000     CONC (UG/M**3)         =    .0000
  CRIT WS @10M (M/S)  =    99.99     CRIT WS @10M (M/S)  =    99.99
  CRIT WS @ HS (M/S)  =    99.99     CRIT WS @ HS (M/S)  =    99.99
  DILUTION WS (M/S)   =    99.99     DILUTION WS (M/S)   =    99.99
  CAVITY HT (M)       =    11.73     CAVITY HT (M)       =     9.14
  CAVITY LENGTH (M)   =    42.38     CAVITY LENGTH (M)   =    16.00
  ALONGWIND DIM (M)   =    12.19     ALONGWIND DIM (M)   =    54.86

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S.  CONC SET = 0.0

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************

 CALCULATION         MAX CONC    DIST TO   TERRAIN
  PROCEDURE         (UG/M**3)    MAX (M)    HT (M)
--------------     -----------   -------   -------
SIMPLE TERRAIN       19.52          92.        0.


***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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P 230 524 369

UNITED STATES POSTAL SERVICE

Receipt for Certified Mail

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

Sent to Carl Schulz	
Street and No. F/A GAS TRANS	
P.O., State and ZIP Code Houston, TX	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date AC 09-229441 7-9-93	

PS Form 3800, June 1991

Is your RETURN ADDRESS completed on the reverse side?

SE
- C
- Complete ite 4
- 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.

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

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

Consult postmaster for fee.

3. Article Addressed to:
Carl Schulz, VP
Project Mgmt Services
F/A. GAS Transmission
PO BOX 1188
Houston, TX 77251-1188

4a. Article Number
P 230 524 369

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

7. Date of Delivery
JUL 13 1993

5. Signature (Addressee)

6. Signature (Agent)

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

PS Form 3811, December 1991 ★U.S. GPO: 1992—323-402 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

7

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

July 6, 1993

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. Carl D. Schulz, Vice President
Project Management Services
Florida Gas Transmission Company
Post Office Box 1188
Houston, Texas 77251-1188

Dear Mr Schulz:

Attached is one copy of the Technical Evaluation and Preliminary Determination and proposed permit to install one natural gas fired turbine in Lecanto, Citrus County, Florida.

Please submit any written comments you wish to have considered concerning the Department's proposed action to Mr. Preston Lewis of the Bureau of Air Regulation.

Sincerely,

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

CHF/TH/kt

Attachments

cc: B. Thomas, SW District
B. Andrews, P.E., ENSR

Printed on recycled paper.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

DEP File No. AC 09-229441
Citrus County

Florida Gas Transmission Company
Post Office Box 1188
Houston, Texas 77251-1188
_______________________________/

INTENT TO ISSUE

The Department of Environmental Protection gives notice of its intent to issue an air construction permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated in the attached Technical Evaluation and Preliminary Determination.

The applicant, Florida Gas Transmission, applied on April 12, 1993, to the Department of Environmental Protection for a permit to construct one natural gas fired turbine. The proposed source will be located at the applicant's new facility in Lecanto, Citrus County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes and Florida Administrative Code (F.A.C.) Chapters 17-212 and 17-4. The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed work.

Pursuant to Section 403.815, Florida Statutes and Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

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 permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. 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;
(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; 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 intent. 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 intent 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.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

C. H. Fancy, P.E., Chief
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399
904-488-1344

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed by certified mail before the close of business on 7-9-93 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.

Kim Tober 7-9-93
Clerk Date

Copies furnished to:

B. Thomas, SW District
B. Andrews, P.E., ENSUR

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Protection gives notice of its intent to issue a permit to Florida Gas Transmission Company, Post Office Box 1188, Houston, Texas 77251-1188, to install one natural gas fired turbine. The Company's facility is located 2 miles northwest of the town of Lecanto along State Route 44 in Citrus County, Florida. A determination of Best Available Control Technology (BACT) was not required. The Department is issuing this Intent to Issue for the reasons stated in the Technical Evaluation and Preliminary Determination.

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, 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, 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; (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; 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 Notice. 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 publication of this notice 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.

The application 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:

Department of Environmental Protection
Bureau of Air Regulation
111 S. Magnolia Park Courtyard
Tallahassee, Florida

Department of Environmental Protection
Southwest District Office
3804 Coconut Palm Drive
Tampa, Florida 33619-8218

Any person may send written comments on the proposed action to Mr. Preston Lewis at the Department's Tallahassee address. All comments received within 14 days of the publication of this notice will be considered in the Department's final determination.

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

FLORIDA GAS TRANSMISSION COMPANY

Citrus County
Lecanto, Florida
Station No. 26

Natural Gas Compressor Engine
Permit No. AC 09-229441

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

July 1, 1993

I. SYNOPSIS OF APPLICATION

I.1 APPLICANT NAME AND ADDRESS

Florida Gas Transmission Company
P.O. Box 1188
Houston, Texas 77251-1188

I.2 REVIEWING AND PROCESS SCHEDULE

Date of Receipt of Application: April 12, 1993

Application Completeness Date: April 12, 1993

II. FACILITY INFORMATION

II.1 FACILITY LOCATION

Florida Gas Transmission Company's (FGTC) facility is located 2 miles northwest of the town of Lecanto along State Route 44 in Citrus County, Florida. The UTM coordinates are Zone 17, 353.212 Km E and 3193.89 Km N.

II.2 STANDARD INDUSTRIAL CLASSIFICATION CODE

This facility is classified as follows:

Major Group No.49 - Electric and Sanitary Services

Group No.492- Gas Production and Distribution

Industry No. 4922- Natural Gas Transmission

II.3 FACILITY CATEGORY

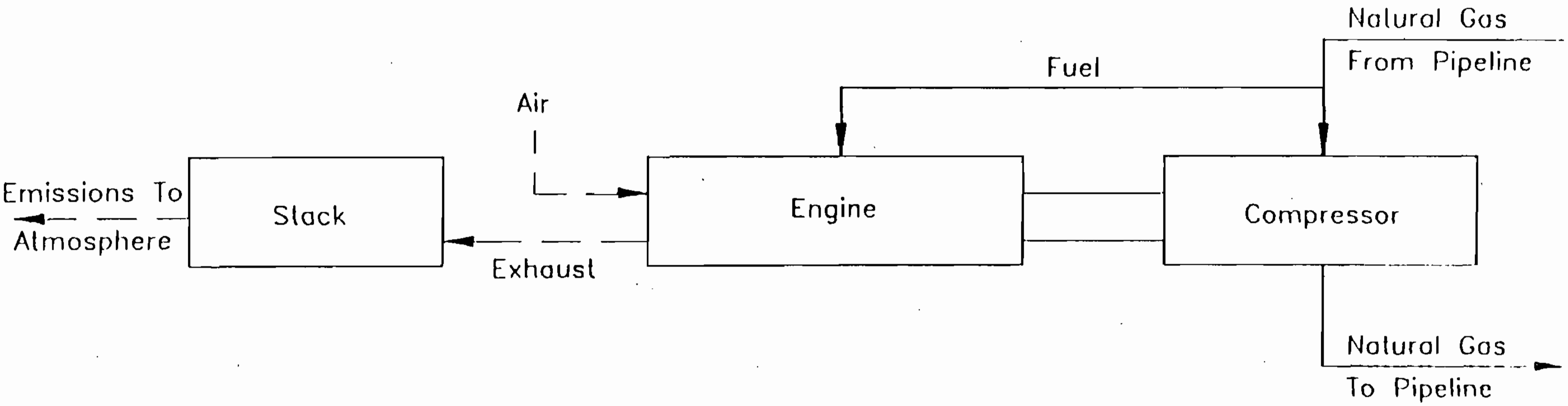
The new FGTC site, in Citrus County will be classified as a minor emitting facility for nitrogen oxides (NOx) and carbon monoxide (CO). The proposed project will emit NOx by 39.41 tons/year and CO by 28.29 tons per year. The total permitted emissions for this facility shall not exceed the above mentioned values.

III. PROJECT DESCRIPTION

The FGTC proposed to install one natural gas fired turbine and associate support equipment. The turbine engine will be one (1) Solar Centaur-Taurus F-6502 unit. The engine is ISO rated at 6,500 bhp at 12,700 revolutions per minute. A flow diagram of a typical compressor unit is presented in Figure 2-1. The proposed engine will incorporate dry low NOx combustion technology.

Best Available Copy

CE679259
(DALLAS/HPCL21)



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ENSR CONSULTING & ENGINEERING

FIGURE 2-1
PROCESS FLOW DIAGRAM
OF AN
ENGINE-COMPRESSOR UNIT

DRAWN: DC/SH	DATE:	11-6-92	PROJECT NUMBER:	5792-068
APPV'D:	REVISED:	3-16-93		

III. 1 Background Information

In general, the FGTC Phase III expansion project will be increasing the natural gas transport capacity of the existing Florida gas pipeline system. The scope of the work for Phase III includes expansions by the addition of state-of-the art compressor engines at six existing compressor stations and two new proposed compressor stations. The proposed engines and turbine engines would be used solely for the purpose of transporting natural gas in the pipeline for distribution in Florida. The main gas pipeline and the approximate locations of the existing and proposed compressor stations along the main pipeline are shown in Figure 1-1.

IV. RULE APPLICABILITY

The proposed project is subject to preconstruction review under applicable provisions of Chapter 403, Florida Statutes, and Florida Administrative (F.A.C.) Chapters 17-209 through 17-297.

This plant is located in an area (Citrus County) designated attainment for all criteria pollutants in accordance with Rule 17-275.400.

The proposed project is exempt from review under F.A.C. Rule 17-212.400 Prevention of Significant Deterioration (PSD) because this new source is considered a minor emitting facility for purpose of PSD regulations (under 250 TPY).

The proposed facility shall comply with applicable provisions of F.A.C. Chapter 17-297, Stationary Sources-Emissions Monitoring; F.A.C. Rule 17-296.310 General Particulate Emission Limiting Standards; F.A.C. Rule 17-296.320, General Pollutant Limiting Standards: and F.A.C. Rule 17-296.800(2)(a), Standards of Performance for Stationary Gas Turbines.

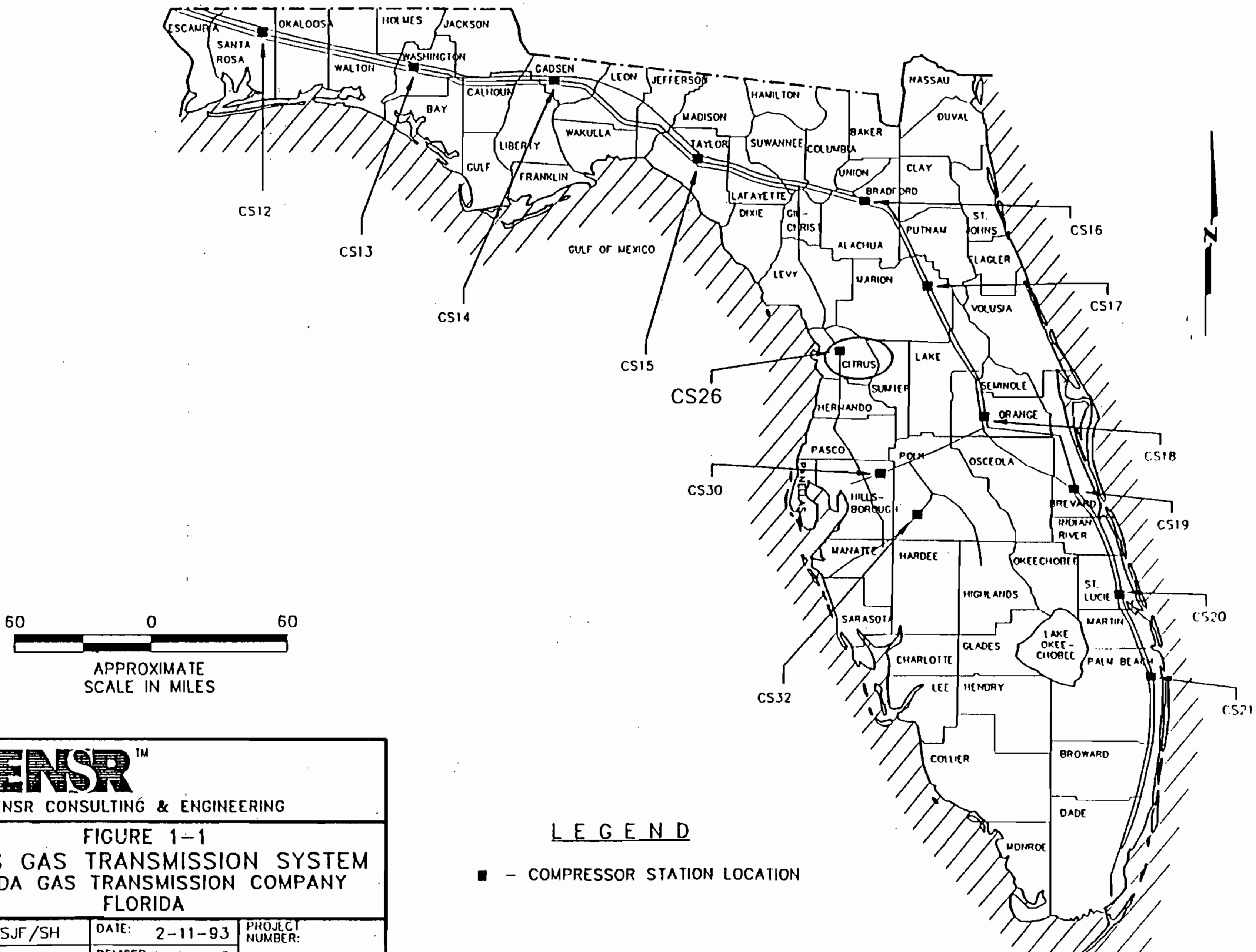
The proposed project will be reviewed in accordance with F.A.C. Rule 17-212.300, Sources not Subject to PSD Review or Nonattainment Requirements.

V. SOURCE IMPACT ANALYSIS

V.1 EMISSION LIMITATIONS

The proposed engine will incorporate dry low-NOx combustion technology. Dry combustion techniques are designed to alter the conditions in the combustion chamber to influence the temperature, residence time, and mixing of air and fuel so as to reduce the amount of NOx formed. The state-of-the-art concept in designing a low-NOx turbine involves raising the air-to-fuel ratio in the combustion primary zone and thoroughly premixing primary combustion air and fuel. This reduces NOx formation by lowering the average

CE679262
12-15-92



LEGEND

■ - COMPRESSOR STATION LOCATION

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FIGURE 1-1
FGTC'S GAS TRANSMISSION SYSTEM
FLORIDA GAS TRANSMISSION COMPANY
FLORIDA

DRAWN:	SJF/SH	DATE:	2-11-93	PROJECT NUMBER:	
APP'VD:		REVISED:	2-26-93	6792-068-035	

flame temperature in the combustor primary zone and avoiding localized hot spots. Dry low-NOx combustion is a technically feasible control method for natural gas pipeline turbines.

The operation of this source and the auxiliary equipment will produce emission of NOx, CO, VOC, SO_2 and PM. Table I summarizes the total emissions from this site.

V.2. AIR QUALITY ANALYSIS

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

VI. **CONCLUSION**

Based on the information provided by Florida Gas Transmission Company, the Department has reasonable assurance that the proposed project, as described in this evaluation, and subject to the conditions proposed herein, will not cause or contribute to a violation of any air quality standard, PSD increment, or any other technical provision of Chapter 17-209 through 17-297 of the Florida Administrative Code.

#41755

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#41755

TABLE I

Annual (TPY) Emission Levels
FGTC, Phase III
Compressor Station No. 26

SOURCE ID	DESCRIPTION	NO_x	CO	VOC (NM/NE, HC)	SO_2	PM
PROJECT ADDED:						
	COMPRESSOR ENGINES:					
2601	6,500 bhp ISO Turbine Engine	39.05	28.29	1.62	7.18	1.26
	EMERGENCY GENERATOR:					
Generator	102 bhp Generator	0.36	0.13	0.005	0.005	0.0009*
	TANKS:					
Tank No. 1	New Lube Oil	—	—	0.00 **	—	—
Tank No. 2	Condensate	—	—	0.08	—	—
Tank No. 3	Oily Water	—	—	0.00 **	—	—
Tank No. 4	Used Lube Oil	—	—	0.00 **	—	—
Tank No. 5	Oily Water Tank	—	—	0.00 **	—	—
	FUGITIVE	—	—	0.14	—	—
PROJECT TOTAL		39.41	28.29	1.85	7.19	1.26
STATION TOTAL***		39.41	28.29	1.85	7.19	1.26

* - actual emissions are insignificant at 0.00089 TPY

** - actual emissions are insignificant at 0.0000013 TPY for Tank No. 1, 0.00013 TPY for Tank No. 3, 0.00026 TPY for Tank No. 4 and 0.0016 TPY for Tank No. 5.

*** - STATION TOTAL = EXISTING + PROJECT

Florida Department of
Environmental Protection

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

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

PERMITTEE:

Florida Gas Transmission Company
P. O. Box 1188
Houston, Texas 77251-1188

Permit Number: AC 09-229441

Expiration Date: June 30, 1995
County: Citrus
Latitude/Longitude: 30°09'50"N
83°36'22"W
Project: Natural Gas Turbine Engine (No. 2601) And Associated Supporting Equipment

The permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-210, 212, 272, 275, 296, and 297; and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of one natural gas fired turbine engine to be located 2 miles northwest of the town of Lecanto along State Route 44 in Citrus County, Florida. The UTM coordinates are, 353.212 km East and 3193.897 km North.

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

Attachments are listed below:

1. Application to Construct/Operate Air Pollution Sources DEP Form 17-1.202(1) received April 12, 1993

Printed on recycled paper.

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules.

This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

GENERAL CONDITIONS:

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:

   a. Have access to and copy any records that must be kept under the conditions of the permit;

   b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and

   c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

   a. a description of and cause of non-compliance; and

   b. the period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

GENERAL CONDITIONS:

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;

GENERAL CONDITIONS:

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

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SPECIFIC CONDITIONS:

Emission Limits

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

Pollutant	lbs/hr	tons/yr	Emission Factor
Nitrogen Oxides	8.92	39.05	0.62 g/bhp-hr
Carbon Monoxide	6.46	28.29	0.45 g/bhp-hr
Volatile Organic Compounds (non-methane)	0.37	1.62	0.26 g/bhp-hr
Particulate Matter (TSP)	0.29	1.26	5 lbs/MMscf
Particulate Matter (PM_{10})	0.29	1.26	5 lbs/MMscf
Sulfur Dioxide	1.64	7.18	10 gr/100scf

*NOx Emission Standard of 42 ppmvd at 15% O_2 shall not be exceeded

2. Visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year). The emergency electrical generator is allowed to operate not more than 400 hours per year.

4. This source is allowed to burn natural gas only.

5. The permitted operating parameters and utilization rates for this natural gas turbine 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 0.057 MMscf/hr.
- Maximum heat input shall not exceed 59.60 MMBtu/hr.

SPECIFIC CONDITIONS:

6. Any change in the method of operation, equipment or operating hours shall be submitted to the DEP's Bureau of Air Regulation and Southwest District offices.

7. Any other operating parameters established during compliance testing and/or inspection that will ensure the proper operation of this facility shall be included in the operating permit.

Compliance Determination

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

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

9. Other DEP approved methods may be used for compliance testing after prior Department approval. Compliance with the SO_2 emission limit can be determined by calculations based on fuel analysis using ASTM D1072-80, D3031-81, D4084-82, or D3246-81 for sulfur content of gaseous fuels.

10. Initial compliance with the volatile organic compound (VOC) emissions limits will be demonstrated by EPA Method 25A or Method 18. Thereafter, except as provided in Rule 17-297.340(2), compliance with the VOC emission limits will be assumed, provided the CO allowable emission rate is achieved.

11. During performance tests, to determine compliance with the NO_x standard, measured NO_x emissions at 15 percent oxygen will be adjusted to ISO ambient atmospheric conditions by the following correction factor:

$$NO_X = (NO_X\ obs) \left(\frac{P_{ref}}{P_{obs}}\right)^{0.5} e^{19} (H_{obs} - 0.00633) \left(\frac{288°K}{T_{AMB}}\right)^{1.53}$$

where:

NO_X = Emissions of NO_X at 15 percent oxygen and ISO standard ambient conditions.

$NO_X\ obs$ = Measured NO_X emission at 15 percent oxygen, ppmv.

P_{ref} = Reference combustor inlet absolute pressure at 101.3 kilopascals (1 atmosphere) ambient pressure.

P_{obs} = Measured combustor inlet absolute pressure at test ambient pressure.

H_{obs} = Specific humidity of ambient air at test.

e = Transcendental constant (2.718).

T_{AMB} = Temperature of ambient air at test.

12. Stack sampling facilities shall be required and shall comply with the requirements of F.A.C. Rule 17-297.345. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in writing in advance of the compliance test(s). The source shall operate between 95% and 100% of maximum capacity for the ambient conditions experienced during compliance test(s). Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

13. Sulfur and nitrogen content and lower heating value of the fuel being fired in the combustion turbine shall be determined as specified in 40 CFR 60.334(b). Any request for a future custom monitoring schedule shall be made in writing and directed to the Southwest District office. Any custom schedule approved by DEP pursuant to 40 CFR 60.334(b) will be recognized as enforceable provisions of the permit, provided that the holder of this permit demonstrate that the provisions of the schedule will be adequate to assure continuous compliance.

14. The permittee shall annually perform a visual inspection of the turbine compressor engine, fitters, associated piping system for rust spots, cracks, leaks and odors. Also ensure that safety valves and the stack are in proper order and working properly. The permittee shall document the findings and corrective action taken.

SPECIFIC CONDITIONS:

Rule Requirements

15. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes, Chapters 17-210, 212, 275, 296, 297 and 17-4, Florida Administrative Code and 40 CFR 60 (July, 1992 version).

16. This source shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 17-296.800,(2)(a), Standards of Performance for Stationary Gas Turbines.

17. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-210.300(1)).

18. No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to an objectionable odor pursuant to F.A.C. Rule 17-296.320(2). Objectionable odor is defined as any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonable interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance pursuant to F.A.C. Rule 17-296.200(123).

19. This source shall be in compliance with all applicable provisions of F.A.C. Rules 17-210.650: Circumvention; 17-210.700: Excess Emissions; 17-296.800: Standards of Performance for New Stationary Sources (NSPS); Chapter 17-297: Stationary Sources-Emissions Monitoring; Chapter 17-296: Stationary Source-Emission Standards and, 17-4.130: Plant Operation-Problems.

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

22. Pursuant to F.A.C. Rule 17-210.300(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur and nitrogen content turbine inlet and outlet temperature, RPM, lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office by March 1 of each calendar year.

23. The permittee, for good cause, may request that this construction permit be extended. Such a request shall be submitted to the Bureau of Air Regulation prior to 60 days before the expiration of the permit (F.A.C. Rule 17-4.090).

SPECIFIC CONDITIONS:

24. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rules 17-4.055 and 17-4.220).

Issued this ______ day

of _______________, 1993

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

____
Howard L. Rhodes, Director
Division of Air Resources
Management

Best Available Copy

State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

DISTRICT ROUTING SLIP

TO: Bill Thomas DATE: 4-13-93

			C.C. TO:
	PENSACOLA	NORTHWEST DISTRICT	
	PANAMA CITY	Northwest District Branch Office	
	TALLAHASSEE	Northwest District Branch Office	
X	TAMPA	SOUTHWEST DISTRICT	
	ORLANDO	ST. JOHNS RIVER DISTRICT	
	JACKSONVILLE	NORTHEAST DISTRICT	
	GAINESVILLE	Northeast District Branch Office	
	FORT MYERS	SOUTH FLORIDA DISTRICT	
	PUNTA GORDA	South Florida District Branch Office	
	MARATHON	South Florida District Branch Office	
	WEST PALM BEACH	SOUTHEAST FLORIDA DISTRICT	
	PORT ST. LUCIE	Southeast Florida Subdistrict	

Reply Optional ☐ Reply Required ☑ Info. Only ☐

Date Due: ________ Date Due: 5-10-93

COMMENTS:

Please provide comments by 5/10/93 to Teresa Heron.

FROM: C. H. Fancy

TEL.: SC/278-1344

Rev. 3/83

April 1993

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

RECEIVED
DER - MAIL ROOM
1993 APR 12 AM 10: 25

April 2, 1993

Mr. Clair Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Dear Mr. Fancy:

Florida Gas Transmission Company, an ENRON/SONAT affiliate, is proposing to expand its existing pipeline system and has filed an application with the Federal Energy Regulatory Commission for a certificate of public convenience and necessity. This expansion will require the installation of three new compressor stations and the addition of new engines at eight existing stations. As discussed in a meeting on December 18, 1992, with you, Mr. Preston Lewis, and other members of your staff, two of the new stations and four of the existing stations requiring new engines are located in Florida. One of the new compressor stations will be Compressor Station No. 26, to be located in Palm Beach County, near West Palm Beach, Florida.

Attached for your consideration is one original and four copies of an application for a State air permit for the construction of a new compressor station with two new 6,500 bhp Solar turbines. A check for the permit fee in the amount of $4,500 is also attached.

Should you have any questions concerning this application, please call Dr. V. Duane Pierce at (713) 853-3569.

Sincerely,

cp. C. D. Schulz
Vice President, Project Management Services
Florida Gas Transmission Company

CDS:DP
pierce\corres\acovfl26.ltr
cc:
Teresa Heron
Cleve Holladay
~~Isidore Goldman, SEA~~ } 4-12-93 RBh
Bill Thomas, SWD 4-13-93 RR

CHECK NO.
0622084162

FLORIDA GAS TRANSMISSION COMPANY
P.O. BOX 1188
HOUSTON, TEXAS 77251-1188

DATE OF CHECK
03-31-93

ENRON CORP

VOID

This check is VOID unless printed on BLUE background

EXACTLY $*****4,500 DOLLARS 00 CENTS

AMOUNT OF CHECK
$*****4,500.00

PAY TO THE ORDER OF

STATE OF FLORIDA DEPT OF
ENVIRONMENTAL REGULATION
TWIN TOWERS OFFICE BUILDING
TALLAHASSEE, FL
32399-2400

BY ______________
"AUTHORIZED REPRESENTATIVE"

NORWEST BANK GRAND JUNCTION

[redacted]

REMITTANCE STATEMENT
FLORIDA GAS TRANSMISSION COMPANY

CHECK NO. 0622084162

PAGE 001 OF 001

VOUCHER NO.	INVOICE DATE	INVOICE NUMBER	PURCHASE ORDER	AMOUNT		
				GROSS	DISCOUNT	NET
	033193	CKR03319302		4,500.00	0.00	4,500.00
					TOTAL	4,500.00

AIR PERMIT APPLICATION FEE FOR COMPRESSOR STATION NUMBER 26 - LECANTO, CITRUS COUNTY, FLORIDA

Special Instructions
CALL MARCY BABB X3295

P. O. BOX 1188, HOUSTON,TEXAS 77251-1188
DETACH STATEMENT BEFORE DEPOSITING. ENDORSEMENT OF CHECK ATTACHED ACKNOWLEDGES PAYMENT IN FULL OF ALL ITEMS SHOWN ABOVE. IN CASE OF ERROR OR OMISSION RETURN BOTH CHECK AND STATEMENT

011-E1153 12/88

AC 09-229441
Rc'd 4-12-93
Rcp't # 0180848
$\$4500^{00}$

Florida Gas Transmission Company

P. O. Box 1188 Houston, Texas 77251-1188 (713) 853-6161

April 2, 1993

Mr. Clair Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

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Sincerely,

cp. C. D. Schulz
Vice President, Project Management Services
Florida Gas Transmission Company

CDS:DP
pierce\corres\acovfl26.ltr

Department of Environmental Regulation

Routing and Transmittal Slip

To: (Name, Office, Location)

1. Bruce Mitchell
2. DARM - Tall
3.
4.

Remarks:

Per your request - package just got here.

RECEIVED
APR 23 1993
Division of Air
Resources Management

From: J. Goldman

Date 4/17

Phone

Florida Gas Transmission Company

PHASE III EXPANSION PROJECT

Compressor Station No. 26
Citrus County, Florida

Permit to Construct Application

April 1993

CONTENTS

CONTENTS
(Cont'd)

APPENDICES

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

Florida Gas Transmission Company (FGTC), a Delaware corporation and ENRON/SONAT affiliate of Houston, Texas is proposing to construct a new natural gas pipeline compressor station in Citrus County, Florida. The proposed facility (Compressor Station No. 26) is part of FGTC's overall Phase III expansion project, aimed at increasing the supply capacity of FGTC's network servicing domestic, commercial, and industrial customers in Florida. The scope of work for the Phase III project includes expansion through the addition of state-of-the-art compressor engines at eight existing compressor stations, and the development of three new compressor stations. The new pipeline will follow much of the right-of-way of the existing system. The basic project components include:

- mainline loops, additions, and replacements;
- lateral loops and additions;
- meter station additions, modifications, and expansions;
- regulator additions, modifications, and expansions; and
- compressor station additions and modifications.

The route of the main gas pipeline, and the approximate location of the proposed Compressor Station No. 26 along the main pipeline is shown in Figure 1-1.

Compressor Station No. 26 is located about 2 miles northwest of the town of Lecanto, along State Route 44 in Citrus County, Florida. Figure 1-2 shows the site location of the proposed compressor station.

The proposed station will consist of one (1) 6,500 (ISO) brake horsepower (bhp), natural-gas-fired, turbine engine and associated support equipment. The proposed engine will be used solely for the purpose of transporting natural gas by pipeline for distribution to markets in Florida. The proposed engine is a Solar Centaur-Taurus T-6502 engine. Under current federal and state air quality regulations, the proposed engine will constitute a minor stationary source.

This report addresses the permitting requirements of the Florida Department of Environmental Regulation (FDER). Based on the level of increased emissions associated with the proposed 6,500 (ISO) bhp engine, this project will require the issuance of a Permit to Construct.

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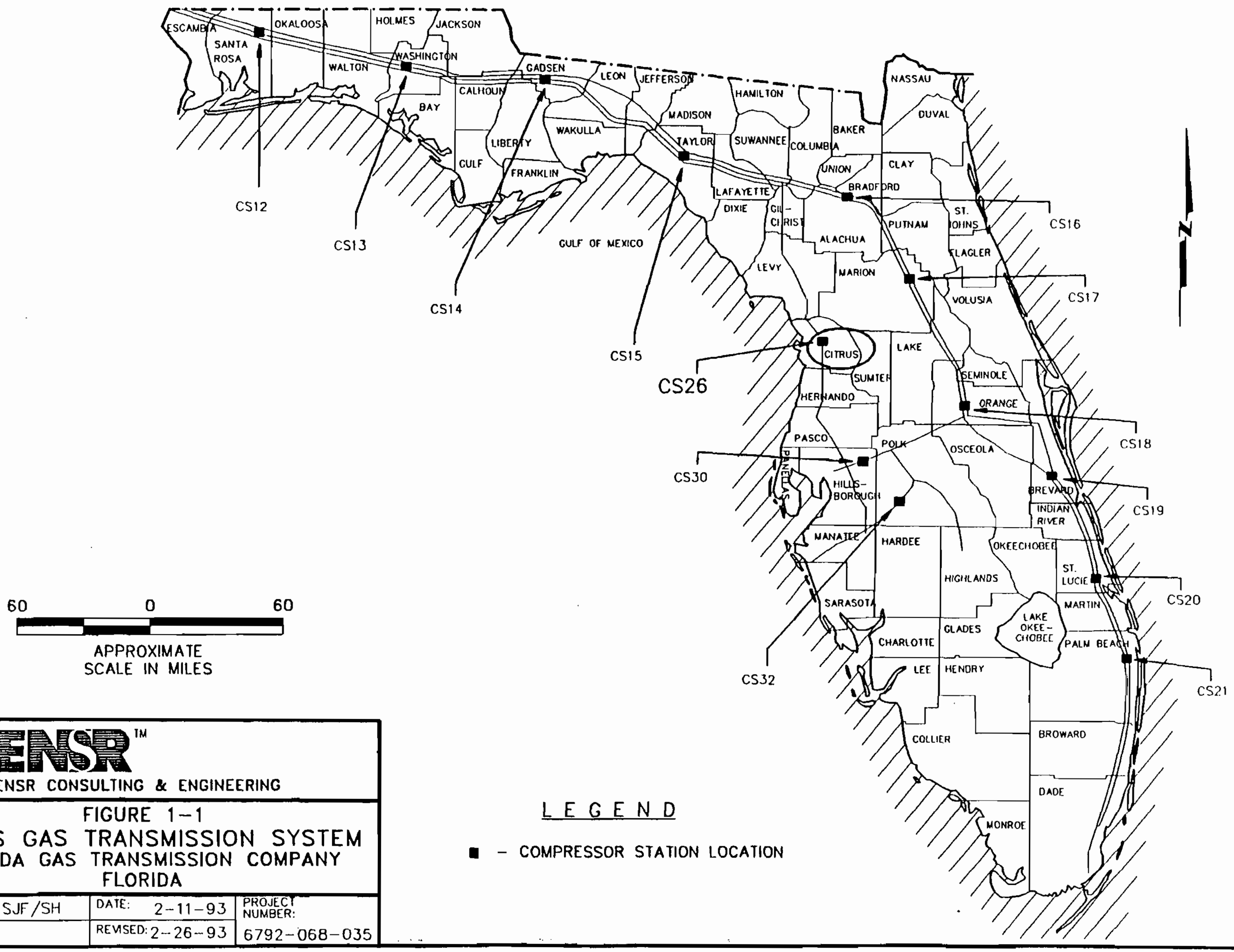

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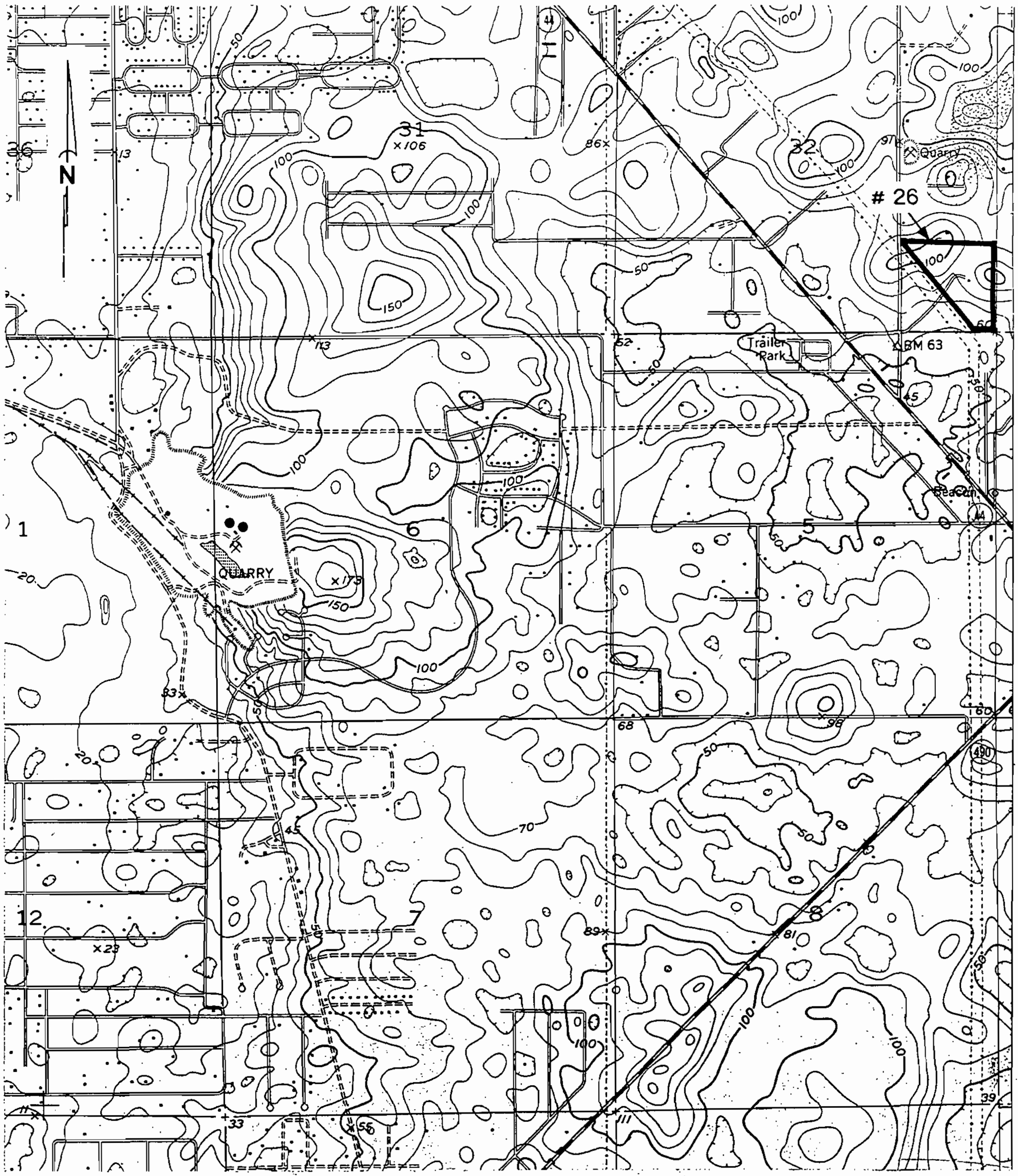
FIGURE 1-1
FGTC'S GAS TRANSMISSION SYSTEM
FLORIDA GAS TRANSMISSION COMPANY
FLORIDA

DRAWN: SJF/SH	DATE: 2-11-93	PROJECT NUMBER:
APPV'D:	REVISED: 2-26-93	6792-068-035



0 2000 4000

SCALE IN FEET

REFERENCE: U.S.G.S. Quadrangle Map for
Homosassa,
Florida, 1988.

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FIGURE 1-2
SITE LOCATION MAP
COMPRESSOR STATION #26
FLORIDA GAS TRANSMISSION CO.
HOMOSASSA, FLORIDA

DRAWN BY: SJF/SH
DATE: 01-11-93
PROJECT NUMBER: 6792-068-035
CHK'D.BY:
REVISED: 3-19-93

TOPO

Engineering designs for the new station include selection of an engine incorporating dry low NO_x combustion technology. The dry low NO_x combustion technology for emission control represents best available control technology (BACT) for the proposed turbine engine.

This application contains four additional sections. Descriptions of the new FGTC's Compressor Station No. 26 and the proposed one (1) 6,500 (ISO) bhp engine are presented in Section 2.0.

The air quality review requirements and applicability of state and federal regulations to the proposed project are discussed in Section 3.0. The methodology and results of the air dispersion modeling and air quality impact analysis are presented in Section 4.0. Section 5.0 lists the references cited in this document.

FDER permit application forms are presented in Appendix A. Additional appendices contain information which support the representations made in this application.

2.0 PROJECT DESCRIPTION

A plot plan of FGTC's Compressor Station No. 26, showing the location of the plant boundaries, and the proposed location of emission sources is presented in Appendix B. The following sections provide a description of the operation proposed for this site.

2.1 Proposed Compressor Station

As part of the Phase III project, three (3) new compressor stations will be constructed. Compressor Station No. 26 is one of these new facilities. The proposed new turbine engine to be installed at Compressor Station No. 26 will be used to drive a gas compressor that is a part of a new gas transmission line that will transport natural gas from source wells in Texas and Louisiana for delivery in Florida. Without development of this new compressor station, it would not be possible to increase the volumetric delivery capacity necessary to meet both short- and long-term demands for natural gas in Florida.

2.1.1 Compressor Engine

FGTC proposes to install one (1) natural-gas-fired turbine engine and associated support equipment at Compressor Station No. 26. The turbine engine will be one (1) Solar Centaur-Taurus T-6502 unit. The engine is ISO rated at 6,500 bhp at 12,700 revolutions per minute (rpm). A flow diagram of a typical compressor unit is presented in Figure 2-1. Fuel will be exclusively natural gas from FGTC's gas pipeline. Engine specifications and stack parameters for the proposed engine are presented in Table 2-1. The proposed engine will incorporate dry, low NO_x combustion technology.

Hourly and annual emissions of regulated pollutants from the proposed engine, under normal operating conditions, are presented in Table 2-2. The table also includes the maximum hourly emission rates which can be expected from this class of engine. These maximum values represent the highest emission rates a unit could produce under any operating condition. It should be noted that these highest emission rates would only occur for short periods under extreme load and/or weather conditions, which are unlikely to be encountered at the compressor station. The maximum emission rates have been included in this application to ensure the facility is properly permitted. Emissions of oxides of nitrogen (NO_x), carbon monoxide (CO), and non-methane hydrocarbons (NMHC) are based on the engine manufacturer's supplied data (See Appendix C).

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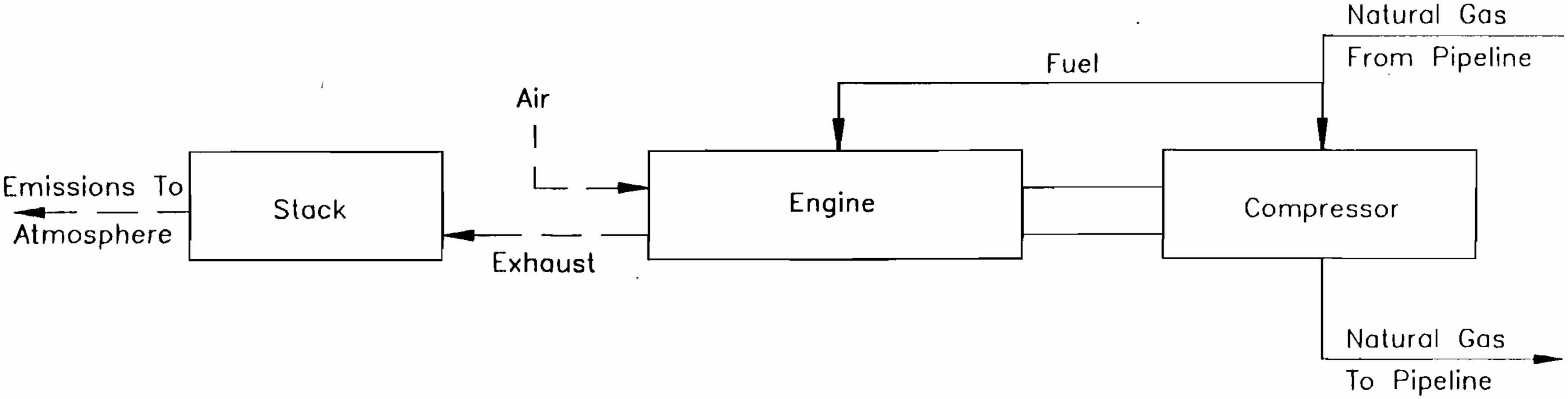

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FIGURE 2-1
PROCESS FLOW DIAGRAM
OF AN
ENGINE-COMPRESSOR UNIT

DRAWN: DC/SH
DATE: 11-6-92
PROJECT NUMBER: 6792-068
APPV'D:
REVISED: 3-16-93

TABLE 2-1

Engine Specifications and Stack Parameters for the Proposed Project

Parameter	Design Specification
Compressor Engine	2601
Type	Gas Turbine
Manufacturer	Solar
Model	Centaur Taurus T-6502
Unit Size	6,500 bhp ISO rated
Specific Heat Input	9,169 Btu/bhp-hr
Maximum Fuel Consumption	0.057 MMscf/hr
Speed	12,700 rpm
Stack Parameters	
Stack Height	50 ft
Stack Diameter	3 ft 4 in
Exhaust Gas Flow	95,039 acfm
Exhaust Temperature	915°F
Exhaust Gas Velocity	181.87 ft/sec

NOTE:

acfm = actual cubic feet per minute.
bhp = brake horsepower.
Btu/bhp-hr = British thermal units per brake horsepower per hour.
°F = degrees fahrenheit.
ft = feet.
ft/sec = feet per second.
lb/hr = pounds per hour.
MMscf/hr = million standard cubic feet per hour.
rpm = revolutions per minute.

[a] Based on heating value for natural gas of 1,040 British thermal units per standard cubic foot (Btu/scf).

TABLE 2-2

Emissions from FGTC's Proposed Compressor Engine

Pollutant	Emission Factor	Reference	Emissions		
			Maximum lb/hr	Nominal lb/hr	TPY
Nitrogen Oxides	0.622 grams/bhp-hr	Manufacturer Data	9.15	8.92	39.05
Carbon Monoxide	0.451 grams/bhp-hr	Manufacturer Data	6.64	6.46	28.29
Volatile Organic Compounds (non-methane)	0.026 grams/bhp-hr	Manufacturer Data	0.38	0.37	1.62
Particulate Matter	0.020 grams/bhp-hr	AP-42 (factor of 5 lb/MMscf)	0.29	0.29	1.27
Sulfur Dioxide	0.114 grams/bhp-hr	10 grains/100 scf	1.64	1.64	7.18

NOTE:

Maximum natural gas consumption is 57,000 standard cubic feet per hour (scf/hr).

grams/bhp-hr = grams per brake horsepower per hour.
grains/100scf = grains per one hundred standard cubic feet.
lb/hr = pounds per hour.
lb/MMscf = pounds per million standard cubic feet.
scf = standard cubic feet.
TPY = tons per year.

Typically, turbine vendors do not provide information on particulate or SO_2 emissions. Therefore, particulate matter (PM) emissions are based upon USEPA publication AP-42 (USEPA, 1988) emission factors for natural gas combustion in boilers, and emissions of sulfur dioxide (SO_2) are based on FGTC's natural gas contract limit of 10 grains sulfur per 100 cubic feet of gas.

2.1.2 Support Equipment Additions

In addition to the compressor engine, some support equipment will be installed at the site and will include:

- A new compressor building
- A new auxiliary building
- A 102-bhp emergency stand-by electrical generator
- One 2,000-gallon new lube oil storage tank
- One 4,200-gallon condensate storage tank
- One 4,200-gallon oily water tank
- One 600-gallon used lube oil tank
- One 300-gallon oily water tank

The locations of new on-site structures are shown on the facility plot plan contained in Appendix B. The new compressor building, housing the T-6502 turbine, has approximate dimensions of 40 feet wide by 60 feet long by 30 feet high. The new auxiliary building will be located west of the new compressor building. The approximate dimensions of the auxiliary building will be 30 feet wide by 80 feet long by 18 feet 8 inches high.

The control and operation of a compressor station requires a steady electrical power supply. As there is a potential for local utility service to be disrupted, FGTC must maintain a backup system. To meet this need at Compressor Station 26, a 102-bhp natural gas fired emergency stand-by generator will be installed at the site. The hourly and annual emissions from this unit are presented in Table 2-3. Hourly emissions were calculated from manufacturer data in a manner similar to the main compressor engines. Annual emissions reflect a 400-hour-per-year operational restriction. Detailed emissions calculations are presented in Appendix D.

Proper lubrication is essential for optimal performance of compressor engines, which must be capable of 24-hour operation for extended periods. For this reason, lube oil will be stored on-site. New lube oil required by the turbine will be stored in a new 2,000-gallon above ground tank. This will be a pressurized (15 psig) horizontal tank 5 feet in diameter and 13 feet 8 inches long.

TABLE 2-3

Emissions from FGTC's Proposed Emergency Electrical Generator

Pollutant	Emission Factor	Reference	Maximum Emissions	
			lb/hr	TPY
Nitrogen Oxides	8.10 grams/bhp-hr	Manufacturer Data	1.82	0.36
Carbon Monoxide	2.80 grams/bhp-hr	Manufacturer Data	0.63	0.13
Volatile Organic Compounds (non-methane)	0.11 grams/bhp-hr	Manufacturer Data	0.025	0.005
Particulate Matter	0.020 grams/bhp-hr	AP-42 (factor of 5 lb/MMscf)	0.0045	0.0009
Sulfur Dioxide	0.11 grams/bhp-hr	10 grains/100 scf	0.025	0.005

NOTE:

Emission calculations based on unit operating a maximum of 400 hours per year.
Maximum natural gas consumption is 890 standard cubic feet per hour (scf/hr).

grams/bhp-hr = grams per brake horsepower per hour.
grains/100scf = grains per one hundred standard cubic feet.
lb/hr = pounds per hour.
lb/MMscf = pounds per million standard cubic feet.
scf = standard cubic feet.
TPY = tons per year.

Periodically engine lube oil must be replaced. Used lube oil drained from the turbines will be temporarily stored on site in a 600-gallon tank. The used lube oil tank will be a rectangular design having dimensions of 2.5 feet high x 4.0 feet wide x 8 feet long. The tank will be located in the main compressor building and be vented to the atmosphere.

The natural gas transported through the station contains minor amounts of moisture and natural gas liquids. This material will be filtered from the natural gas passing through the station and stored on site in a 4,200-gallon condensate tank. This tank will be 9.5 feet in diameter and 8 feet tall. The tank will be equipped with an atmospheric vent.

Two additional tanks will be constructed as part of the project. Both tanks are involved with facility housekeeping, storing oily water generated during washdown of the compressor building. One tank will be located in the compressor building and serve as a short-term holding tank during cleaning operations. This tank will have approximate dimensions of 2.5 feet high by 4 feet wide by 4 feet long.

After cleaning is completed, oily water will be transferred to a 4,200-gallon aboveground storage tank located outside the compressor building. This tank will have the same dimensions as the condensate storage tank. Both oily water tanks will be vented to the atmosphere.

Annual emissions from the five tanks have been calculated using USEPA's AP-42 procedures and are not expected to exceed a total of 0.08 TPY. Emissions from the individual tanks are listed on the Annual Emission Levels Summary Table (Page 2-9).

2.1.3 Fugitive Emissions

Potential emissions from Compressor Station No. 26 include fugitive emissions from the new valves and flanges that will be in gas service. Fugitive emissions from this source have been estimated using USEPA factors for components in gas service. Table 2-4 lists the components to be installed as part of the Phase III project, and an estimate of the fugitive emissions from these sources.

2.1.4 Emissions Summary

The total emissions resulting from the project are listed in Table 2-5. The calculations used to estimate these emissions are presented in Appendix D.

TABLE 2–4
FGTC's Compressor Station No. 26
Fugitive VOC Emission Calculation and Summary

COMPONENT TYPE	SERVICE	COMPONENT COUNT	EMISSION FACTORS		NM/NE * FRACTION	EMISSIONS		
						LBS/HR	LBS/DAY	TONS/YR
CURRENT:								
Valve	Gas	0	1.06 Lbs/Day	(a)	0.005	0.000	0.00	0.00
Flange	Gas	0	0.57 Lbs/Day	(a)	0.005	0.000	0.00	0.00
Compressor Seal	Gas	0	39.7 Lbs/Day	(a)	0.005	0.000	0.00	0.00
					Total	0.000	0.00	0.00
PROJECT ADDED:								
Valve	Gas	57	1.06 Lbs/Day	(a)	0.005	0.013	0.30	0.06
Flange	Gas	103	0.57 Lbs/Day	(a)	0.005	0.012	0.29	0.05
Compressor Seal	Gas	1	39.7 Lbs/Day	(a)	0.005	0.008	0.20	0.04
					Total	0.033	0.79	0.14
FUTURE: (b)								
Valve	Gas	57				0.013	0.30	0.06
Flange	Gas	103				0.012	0.29	0.05
Compressor Seal	Gas	1				0.008	0.20	0.04
					Total:	0.033	0.79	0.14

Notes: (a) – EPA–450/3–83–007, page 3–9
(b) – Future = current + project added
* – NM/NE = non–mentane/non–ethane

TABLE 2-5

Annual (TPY) Emission Levels
FGTC, Phase III
Compressor Station No. 26

SOURCE ID	DESCRIPTION	NO_x	CO	VOC (NM/NE, HC)	SO_2	PM
PROJECT ADDED:						
	COMPRESSOR ENGINES:					
2601	6,500 bhp ISO Turbine Engine	39.05	28.29	1.62	7.18	1.26
	EMERGENCY GENERATOR:					
Generator	102 bhp Generator	0.36	0.13	0.005	0.005	0.0009*
	TANKS:					
Tank No. 1	New Lube Oil	—	—	0.00 **	—	—
Tank No. 2	Condensate	—	—	0.08	—	—
Tank No. 3	Oily Water	—	—	0.00 **	—	—
Tank No. 4	Used Lube Oil	—	—	0.00 **	—	—
Tank No. 5	Oily Water Tank	—	—	0.00 **	—	—
	FUGITIVE	—	—	0.14	—	—
PROJECT TOTAL		39.41	28.29	1.85	7.19	1.26
STATION TOTAL* **		39.41	28.29	1.85	7.19	1.26

* - actual emissions are insignificant at 0.00089 TPY

** - actual emissions are insignificant at 0.0000013 TPY for Tank No. 1, 0.00013 TPY for Tank No. 3, 0.00026 TPY for Tank No. 4 and 0.0016 TPY for Tank No. 5.

*** - STATION TOTAL = EXISTING + PROJECT

3.0 REGULATORY ANALYSIS

This section presents a review of the federal and Florida state air quality regulations which govern the operations to be conducted at Compressor Station No. 26.

3.1 Federal Regulatory Review

The federal regulatory programs administered by the USEPA have been developed under the authority of the Clean Air Act. The following subsections review the key elements of the federal regulatory program and the impact they have on operations at Compressor Station No. 26. Special attention will be placed on National Ambient Air Quality Standards (AAQS 40 CFR 50), New Source Performance Standards (NSPS 40 CFR 60), National Emission Standards for Hazardous Air Pollutants (NESHAPS 40 CFR 61), and Prevention of Significant Deterioration (PSD 40 CFR 52.21).

3.1.1 Classification of Ambient Air Quality

The 1970 Amendments to the CAA gave the USEPA specific authority to establish the minimum level of air quality which all states would be required to achieve. These minimum values or standards were developed to protect the public health (primary) and welfare (secondary). The federally promulgated standards and additional state standards are presented on Table 3-1.

Areas of the country which have air quality equal to or better than these standards (i.e., ambient concentrations less than a standard) are designated as "Attainment Areas," while those where monitoring indicates air quality is worse than the standards are known as "Non-attainment Areas." The designation of an area has particular importance for a proposed project as it determines the type of permit review to which the application will be subject.

Major new sources or major modifications to existing major sources located in attainment areas are required to obtain a PSD permit prior to initiation of construction. Similar sources located in areas designated as Non-attainment, or that adversely impact on such areas, will undergo more stringent New Source Review (NSR). In either case it is necessary, as a first step, to determine the air quality classification of a project site.

The 1990 CAA Amendments called for a review of the ambient air quality of all regions of the United States. States were required to file with the USEPA by March 15, 1991, designations of all areas as either attainment, non-attainment or unclassifiable.

TABLE 3-1

NATIONAL AND STATE AMBIENT AIR QUALITY STANDARDS ($\mu g/m^3$)

	AVERAGING PERIOD	EPA STANDARDS		FLORIDA STANDARDS
		PRIMARY	SECONDARY	
PM_{10}	24-hour(1)	150	150	150(1)
	annual(2)	50	50	50
SO_2	3-hour(1)	---	1,300	1,300
	24-hour(1)	365	---	260
	annual(2)	80	---	60
CO	1-hour(1)	---	40,000	40,000
	8-hour(1)	10,000	---	10,000
NO_2	annual(2)	100	100	100
O_3	1-hour(3)	235	235	235

(1) Not to be exceeded more than once per year.

(2) Never to be exceeded.

(3) Not to be exceeded on more than 3 days over 3 years.

Source: 40 CFR 50; 36FR22384; Chapter 17-2.300, F.A.C.

The current classification of Citrus County is listed below on Table 3-2, for each criteria pollutant. These designations were obtained from 40 CFR 81, as updated in the November 6, 1991, Federal Register (56FR56694). As shown, Citrus County is designated as attainment or unclassifiable for all criteria pollutants.

3.1.2 PSD Applicability

The 1977 CAA Amendments added Part C - Prevention of Significant Deterioration to the Act. This part requires proposed new major stationary sources or existing sources planning a major modification in an area that has attained the National AAQS, to conduct a preconstruction review that includes a detailed analysis of the source's emissions, available emission control technology, and project-related impacts.

Federal air quality permitting regulations for attainment areas are codified in the Code of Federal Regulations (CFR), Title 40 - Protection of the Environment, Part 52.21 - Prevention of Significant Deterioration (PSD) (40 CFR 52.21). While the portion of the Florida State Implementation Plan (SIP) related to PSD regulations has been approved by the USEPA, and authority for the PSD program has been transferred to the state, the applicability of the program to Compressor Station No. 26 will be reviewed in this section, as it remains primarily a federal program.

For the PSD regulations to apply to a given project, the proposed location must be in a PSD area; i.e., an area that has been classified as attainment or unclassifiable for a particular pollutant. A project's potential to emit is then reviewed to determine whether it constitutes a major new stationary source or major modification of an existing major stationary source.

A major stationary source is defined as either one of the 28 sources identified in 40 CFR 52.21 (see Table 3-3) and that has a potential to emit 100 tons or more per year of any regulated pollutant, or any other stationary source that has the potential to emit 250 tons or more per year of a regulated pollutant. "Potential to emit" has a special meaning here as it is determined on an annual basis after the application of air pollution control equipment, or any other federally enforceable restriction.

By these definitions, and based on the emissions presented in Section 2.0, Compressor Station No. 26 will be a minor stationary source. It is not one of the 28 named source categories. It does not have the potential to emit ≥250 TPY of at least one regulated pollutant. Therefore, the compressor station is not subject to PSD preconstruction permitting review.

TABLE 3-2

Classification of Citrus County For Each Criteria Pollutant

Carbon Monoxide	Cannot be Classified or Better than National Standards
Oxides of Nitrogen	Cannot be Classified or Better than National Standards
Sulfur Dioxide	Better than Standards
Particulate Matter (PM_{10})	Not Designated
Total Suspended Particulate	Better than Standards
Ozone	Cannot be Classified or Better than National Standards

Source: 40 CFR 81.300, 1991
56FR56694

TABLE 3-3

Major Stationary Sources

Fossil Fuel-Fired Steam Electric Plants of More Than 250,000,000 British Thermal Units Per Hour Heat Input
Coal Cleaning Plants (with thermal dryers)
Kraft Pulp Mills
Portland Cement Plants
Primary Zinc Smelters
Iron and Steel Mill Plants
Primary Aluminum Ore Reduction Plants
Primary Copper Smelters
Municipal Incinerators Capable of Charging More Than 250 Tons of Refuse Per Day
Hydrofluoric, Sulfuric or Nitric Acid Plants
Petroleum Refineries
Lime Plants
Phosphate Rock Processing Plants
Coke Oven Batteries
Sulfur Recovery Plants
Carbon Black Plants
Primary Lead Smelters
Fuel Conversion Plants
Sintering Plants
Secondary Metal Production Plants
Chemical Processing Plants
Fossil-Fuel Boilers (or combination thereof) Totaling of More Than 250,000,000 British Thermal Units Per Hour Heat Input
Petroleum Storage and Transfer Units With a Total Storage Capacity Exceeding 300,000 Barrels
Taconite Ore Processing Plants
Glass Fiber Processing Plants
Charcoal Production Plants

Source: 40 CFR 51.165(a)(iv)(2)(c); Chapter 17-2.500, F.A.C.

3.1.3 Good Engineering Practice (GEP) Stack Height Analysis

The 1977 CAA Amendments require that the degree of emission limitation required for control of any pollutant not be affected by a stack which exceeds GEP height. Further, no dispersion credit is given during air quality modeling for stacks which exceed GEP. GEP stack height is defined as the highest of:

- 65 meters; or
- a height established by applying the formula

  $H_{GEP} = H + 1.5 L$

  Where; H_{GEP} = GEP Stack Height,
  H = Height of the structure or nearby structure, and
  L = Lesser dimension (height or projected width) of the nearby structure; or

- a height demonstrated by fluid modeling or field study.

A structure or terrain feature is considered nearby if a stack is within a distance of five times the structure's height or maximum projected width. Only the smaller value of the height or projected width is used, and the distance to the structure cannot be greater than 0.8 kilometers. Although GEP stack height regulations require that the stack height used in modeling for determining compliance with National AAQS and PSD increments not exceed GEP stack height, the actual stack height may be greater.

The stack height regulations also increase GEP stack height beyond that resulting from the formula in cases where plume impaction occurs. Plume impaction is defined as concentrations measured or modeled to occur when the plume interacts with elevated terrain. Elevated terrain is defined as terrain which exceeds the height calculated by the GEP stack height formula. Because terrain in the vicinity of the project site is generally flat, plume impaction is not considered in determining the GEP stack height.

The proposed stack at Compressor Station No. 26 will be 50 feet (15.24 meters) tall. Based on the proposed building dimensions, the calculated GEP stack height is less than 65 meters; therefore, GEP stack height is 65 meters. Since the stack is less than GEP stack height, it complies with the regulatory requirement.

3.1.4 Non-Attainment New Source Review (NSR) Applicability

Based on the current non-attainment provisions, all new major stationary sources, or modifications to such sources, located in a non-attainment area must undergo non-attainment New Source Review, if they have the potential to emit above an NSR significant threshold. For major new sources or major modifications in an attainment or unclassifiable area, the non-attainment provisions apply if the source or modification is located within the area of influence of a non-attainment area. The area of influence is defined as an area which is outside the boundary of a non-attainment area but within the locus of all points that are 50 km outside the non-attainment area. Based on Chapter 17-2.510(2)(a)2.a, Florida Administrative Code (F.A.C.), sources emitting all Volatile Organic Compounds which are located within an area of influence are exempt from the provisions of new source review for non-attainment areas.

Compressor Station No. 26 is located in an area classified as either attainment or unclassifiable for all criteria pollutants. Therefore, this compressor station is not subject to federal non-attainment New Source Review.

3.1.5 Applicability of New Source Performance Standards (NSPS)

The regulation of new sources through the development of standards applicable to a specific category of sources was a significant step taken by the 1970 CAA Amendments. The Administrator was directed to prepare and publish a list of stationary source categories which, in the Administrator's judgement, cause or contribute significantly to air pollution and which may reasonably be anticipated to endanger public health. Further, the Administrator was to publish a proposed regulation establishing a Standard of Performance for any new source which fell into that category. The significant feature of the Section was that it would apply to all sources within a given category, regardless of its geographic location or the ambient air quality at that location. The standards, in essence, defined emission limitations that would be applicable to a particular source group.

A portion of Section 111 of the Act requires states to develop their own set of performance standards. State standards apply to existing sources and only to those pollutants for which air quality criteria had not been developed or were not covered by either Section 108 or 112 of the Act. Additionally, states could regulate any source whether covered by a federally designated source category or not. It is clear that Congress wanted to give the states specific authority to regulate existing sources which would, otherwise, only be subject to the provisions of Section 111 if they were new. New Source Performance Standards promulgated by the state of Florida are discussed in Section 3.2 and Appendix E.

Currently, there are 66 separate performance standards published in 40 CFR 60. The turbine to be installed at Compressor Station No. 26 is subject to Subpart GG Stationary Gas Turbine because it will have a maximum heat input at peak load of >10.7 gigajoules/hour (10 MMBtu/hr) based on the lower heating value of the natural gas fuel. The NO_x emission limit for Subpart GG is calculated as follows:

The NO_x emission limit for Subpart GG is calculated as follows:

$$STD = 0.0150 \frac{14.4}{Y} + F$$

STD = *Allowable* NO_x *emissions*

Y = *Heat rate at peak load not to exceed* 14.4 *Kj/watt-hour*

F = NO_x *emission allowance*

The fuel bound nitrogen in natural gas is less than 0.015% by weight. Therefore, the value of F as defined in 40 CFR 60.332(3) is equal to zero.

$$Y = Btu/bhp\text{-}hr \times 1.055\ Kj/Btu \times hp\text{-}h4/745.7\ watt\text{-}hour$$

$$= 9{,}169\ Btu/bhp\text{-}hr \times 1.055\ Kj/Btu \times hp\text{-}hr/745.7\ watt\text{-}hour$$

$$= 13.0$$

$$STD = 0.0150 \frac{14.4}{13.0} + F$$

$$= 0.0166$$

$$= 166\ ppm_v$$

Table 3-4 summarizes the NSPS applicability for the proposed gas engines.

The turbine at this facility will meet the NSPS for NO_x of 166 ppm_v (i.e., manufacturer's guarantee of 42 ppm_v), and for SO_2 of 150 ppm_v (estimated for this turbine to be 4.5 ppm_v).

TABLE 3-4

Applicability of New Source Performance Standards

NSPS Subpart	NSPS Regulations	Equipment	Fuel	Pollutant	Heat Input Applicability	Equipment Design Maximum*	NSPS Emission Limits	Equipment Emissions
GG	60.332(a)(2)	Engine No. 2601 Gas Turbine	Gas	NO_2	>10 MM Btu/hr	59.6 MMBtu/hr	166 ppm_v	42 ppm_v
GG	60.333(a)	Engine No. 2601 Gas Turbine	Gas	SO_2	>10 MMBtu/hr	59.6 MMBtu/hr	150 ppm_v	5 ppm_v

* Design maximum based on vendor data.

3.1.6 Applicability of National Emission Standards for Hazardous Air Pollutants (NESHAP)

Realizing that there were numerous pollutants that did not meet the specific criteria for development of a National AAQS, Congress included Section 112 in the 1970 CAA Amendments which specifically addressed this problem. Section 112 provides the USEPA with a vehicle for developing standards for potentially hazardous pollutants.

During the development of the 1970 CAA Amendments, the Senate prepared a report identifying many such compounds which were to be considered for regulation under the new section. The 1990 CAA Amendments significantly expanded the number of compounds to be regulated under Section 112. Under the current provisions of the Act, 189 compounds or classes of compounds are to be regulated under Section 112 by November 15, 2000.

The regulations which were developed to implement Section 112 are presented in 40 CFR, Part 61 and Chapter 17-2.670, F.A.C. This part contains a listing of those pollutants that have been designated as being hazardous (Part 61.01) as defined in Section 112, and standards applicable to specific industries. Unlike the New Source Performance Standards, this Section is applicable to both new and existing sources that emit pollutants subject to the Section. None of the promulgated standards currently apply to Compressor Station No. 26.

3.2 Florida State Air Quality Regulations

Title 17, F.A.C., contains the environmental rules and regulations for the State of Florida. The primary federal regulations which affect Compressor Station No. 26 have been incorporated, for the most part in whole, into the Florida state regulations. Specific air quality regulations of the state of Florida are contained in Chapter 17-2, F.A.C., and are too numerous to discuss in detail in this section. However, an applicability review was performed during the preparation of this document. The results of this review are presented in Appendix E. Compressor Station No. 26 will operate in compliance with all applicable Florida state air quality regulations as documented in Appendix E.

4.0 AIR QUALITY IMPACT ANALYSIS

The FDER Air Quality Division, requires an ambient air quality impact analysis be performed on a proposed project's emissions. For State Authority to Construct permits, this involves comparison of the proposed projects' impact to the State and National AAQS, discussed in Section 3.0. This section outlines the general approach used for this analysis. This approach was developed in consultation with the FDER and conforms with the recommendations presented in the Guideline on Air Quality Models (USEPA, 1987).

4.1 Modeling Methodology and Assumption

This section outlines the approach used in the air dispersion analysis. Model selection, meteorological data used, structure downwash considerations and model results from Compressor Station No. 26 in Citrus County, Florida are discussed.

4.1.1 General Modeling Methodology

The air dispersion modeling approach follows USEPA and FDER guidelines for determining compliance with State and National AAQS. Air dispersion modeling was used to establish compliance with federal and/or state AAQS.

The procedure listed below was followed:

- Model predictions for annual and short-term average concentrations, based on the emissions of NO_x and CO from the proposed compressor station were obtained using the Industrial Source Complex long-term (ISCLT2) and short-term (ISCST2) model (version 92062). A brief description of the Industrial Source Complex (ISC) model is given in Section 4.1.2.

- For comparison to the annual National AAQS for NO_x, the ISCLT2 model was run using five years of meteorological data (1982-1986) obtained from the FDER and processed into the stability array (STAR) format. The maximum off-site NO_x impact from all 5 years was then compared to the significance level for NO_x. All off-site NO_x concentrations were less than the PSD/National AAQS significance level; therefore, no additional modeling was performed for NO_x.

- For comparison to short-term AAQS for CO, the ISCST2 model was run with five years (1982-1986) of meteorological data obtained from the FDER. The maximum predicted off-site concentration was compared to the PSD/National AAQS significance level for CO for both 1- and 8-hour averaging periods. Since all off-site receptors showed a concentration less than the significance level for CO, no additional modeling analysis was conducted for CO.

4.1.2 Model Selection

The ISC dispersion model was used to evaluate emissions from the proposed facility. The ISC model was selected primarily for the following reasons:

- USEPA and FDER have approved the general use of the model for air quality dispersion analysis because the model assumptions and methods are consistent with those in the Guideline on Air Quality Models (USEPA, 1987);

- The ISC model is capable of predicting the impacts from stack, area, and volume sources that are spatially distributed over large areas and located in flat or gently rolling terrain; and

- The results from the ISC model are appropriate for addressing compliance with AAQS and PSD increments.

Major features of the ISC model are presented in Table 4-1. Concentrations due to point, area, and volume sources are calculated by the model using the steady-state Gaussian plume equation for a continuous source.

4.1.3 Modeling Options

For modeling analyses that will undergo regulatory review, the following model options are recommended in the USEPA Guideline on Air Quality Models, (USEPA, 1987), and are referred to, in the ISC model, as the Regulatory Default Options:

- Final plume rise at all receptor locations,
- Stack-tip downwash,
- Buoyancy-induced dispersion,
- Default wind speed profile coefficients for rural or urban option,
- Default vertical potential temperature gradients, and

TABLE 4-1
Major Features of the ISC Model

ISC Model Features
• Polar or Cartesian coordinate systems for receptor locations
• Rural or urban option that affect windspeed profile exponent, dispersion rates, and mixing height calculations
• Plume rise as a result of momentum and buoyancy as a function of downwind distance for stack emissions (Briggs)
• Procedures suggested by Huber and Snyder (1976), Huber (1977), Schulman and Hanna (1986), and Schulman and Scire (1980) for evaluating building downwash and wake effects
• Procedures suggested by Briggs for evaluating stack-tip downwash
• Separation of multiple point sources
• Consideration of the effects of gravitational settling and dry deposition on ambient particulate concentrations
• Capability of simulating point, line, volume, and area sources
• Capability to calculate dry deposition
• Variation of windspeed with height (windspeed-profile exponent law)
• Concentration estimates for annual average
• Terrain-adjustment procedures for elevated terrain including a terrain truncation algorithm
• Receptors located above local terrain (i.e., "flagpole" receptors)
• Consideration of time-dependent exponential decay of pollutants
• The method of Pasquill (1976) to account for buoyancy-induced dispersion
• A regulatory default option to set various model options and parameters to EPA recommended values (see text for regulatory options used)
SOURCE: User's Guide for the Industrial Source Complex (ISC2) Dispersion Model Vol. 1 Draft EPA-450/4-92-2a

- Reducing calculated SO_2 concentrations in urban areas by using a decay half-life of 4 hours (i.e., reduce the SO_2 concentration by 50 percent for every 4 hours of plume travel time).

In this analysis, the USEPA Regulatory Default Options were used to address maximum impacts.

4.1.4 Selection of Dispersion Coefficients

The ISC model has rural and urban options which affect the wind speed profile, dispersion rates, and mixing-height formulations used in calculating ground level concentrations. The criteria used to determine when the rural or urban mode is appropriate are based on land use near the proposed facility's surroundings (Auer, 1978). If the land use is classified as heavy industrial, light-moderate industrial, commercial, or compact residential for more than 50 percent of the area within a 3 kilometers radius of the proposed source, the urban option is selected. Otherwise, the rural option is used. Based on a review of the USGS topographical map of the land within a 3 kilometer radius around the site, the rural mode was selected.

4.1.5 Meteorological Data

The USEPA Guideline on Air Quality Models (USEPA, 1987) recommends the use of 5 years of representative meteorological data in air quality modeling. The most recent, readily available 5-year period is preferred. The meteorological data may be collected either on-site or at the nearest National Weather Service (NWS) station.

The NWS station in Tampa, Florida, located approximately 60 miles south of the site, is the most representative weather station that routinely records the hourly surface data required by air dispersion models. Due to the proximity of this NWS station to the compressor station, the meteorological data were considered representative of weather conditions occurring at the Citrus County compressor station.

Meteorological data used in the analysis were obtained from FDER. The data consist of a 5-year record of surface and upper air weather observations (1982-1986). Surface and upper air data were collected by the NWS at the Tampa Airport. The database consists of hourly surface data (i.e., windspeed, wind direction), and twice daily mixing heights. These data were preprocessed by the FDER, using the USEPA program RAMMET, which combines the surface and upper data into a single file, which can then be input directly into the ISCST2 model. The five years of surface data were then processed using the USEPA STAR program, to generate the data required by ISCLT2 model.

4.1.6 Source Data

The source parameters used to model Compressor Station No. 26 are presented in Table 4-2. The location of the proposed stacks within the site are presented on the facility plot plan (see Appendix B). The emission point listed in Table 4-2 as source 2601 (ISC model Source No. 1) corresponds to the new compressor engine. Source No. 2611 corresponds to the new emergency stand-by generator (ISC Model Source No. 2). Table 4-3 lists the emission rates modeled for each pollutant. The maximum pound per hour (lb/hr) emission rates were input to the ISCST2 model to determine concentrations for short-term averaging periods. Vendor supplied emission rates, in grams/bhp, converted to a tons per year value were used to determine annual average concentrations.

4.1.7 Receptor Grid Modeled

For both ISCST2 and ISCLT2, a 100-meter spaced, 25 x 25 receptor grid was used to determine the maximum off-site concentrations, per guidance from FDER and the Guideline on Air Quality Models (USEPA, 1987). The receptor grid was centered on the facility, and extended 1.2 kilometers in all directions.

4.1.8 Building Wake Effects and GEP Considerations

Based on the dimensions of the structures located at the compressor station, all stacks will be less than maximum allowable GEP height. Due to the location of emission points in relation to buildings and other solid structures, the stack emissions may be affected by building wakes from some of the structures. Therefore, the potential for building downwash must be considered in the modeling analysis.

The procedure used for addressing the effects of building downwash are those recommended in the User's Guide for the Industrial Source Complex (ISC) Dispersion Model (USEPA, 1992). In the ISC model, the building heights and widths are input to the model for each direction. If the Huber-Snyder building downwash routine is used, the model picks the worst case dimension from all values. The effective width used by the program is the diameter of a circle with an equal area to the square of the width input to the model.

TABLE 4-2

FGTC Phase III
Station No. 26
Summary of Source Parameters Used in the Modeling Analysis

Source Number	Stack Location		Stack Dimensions		Operating Parameters	
	X (m)	Y (m)	Height (m)	Diameter (m)	Temperature (K)	Velocity (m/s)
2601	0.0	0.0	15.24	1.01	763.72	55.43
2611	18.0	-9.0	6.10	0.09	894.27	44.10

TABLE 4-3

FGTC Phase III Expansion
Station No. 26
Modeled Emission Rates

SOURCE NO.	NO_x (TONS/YR)	CO (MAX LB/HR)
2601	39.05	6.64
2611	0.36	0.63
SOURCE NO.	**NO_x (GM/SEC)**	**CO (MAX GM/SEC)**
2601	1.12	0.84
2611	0.01	0.08

If a specific width is to be modeled, then the value input to the model must be calculated according to the following formula:

$$M_w = \sqrt{\pi \times \left(\frac{H_w}{2}\right)^2}$$

$$= 0.886 H_w$$

where: M_w = building width input to the model to produce a building width of H_w used in the dispersion calculation.

H_w = the actual building width for dispersion calculations are desired.

If the Schulman-Scire wake effects method is used, the user inputs the building height and projected width associated with each wind sector. The actual inputs to the ISC were generated using the Bowman Environmental Engineering Automated Downwash Program. Plant coordinates of all building corners, tier corners, and emission points are input into the Downwash Program model. The program provides direction specific building dimensions for either the ISC long- or short-term model, which is then directly input into the ISC source file. The program was run using a rectangular building wake area and a wind direction angle increment of 1 degree. A summary of actual building dimensions for structures considered is presented in Table 4-4.

4.2 Model Results

Modeling was performed for the total emissions of the following pollutants emitted from the proposed Compressor Station No. 26:

- NO_x, and
- CO

TABLE 4-4

FGTC Phase III
Station No. 26
Building Dimensions

Building	Actual Building Dimensions		
	Height (ft)	Length (ft)	Width (ft)
Auxiliary Building	18.7	80	30
Compressor Building	30	60	40

The maximum predicted off-site concentrations for each modeled pollutant, averaging period, and National AAQS, and AAQS significance level is shown in Table 4-5. Table 4-6 provides the maximum concentration for each meteorological data year modeled. The maximum predicted off-site impact from each pollutant was generally within 200 meters of the compressor station property boundary.

Area concentration maps for the worst case year, showing the facility boundary and maximum impacts at each modeled receptor, are included in Appendix F.

As shown, all predicted off-site concentrations for NO_x and CO were lower than the applicable AAQS, and significance levels were not exceeded. The results of this air dispersion modeling show that the proposed Citrus County compressor station should not have an adverse effect on the surrounding area.

A floppy disk, containing all model input and output files, and structure downwash program input and output is included in Appendix F. Hardcopy printouts of ISC model output files are also included.

TABLE 4-5

FGTC PHASE III
STATION NO. 26
MODELING RESULTS
MAXIMUM PREDICTED AVERAGE CONCENTRATION OF MODELED POLLUTANTS AND COMPARISON TO SIGNIFICANT IMPACT LEVEL

POLLUTANT	AVG TIME	MAX OFF-SITE ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	SIGNIFICANT IMPACT ($\mu g/m^3$)
NO_x				
SOURCE 2601, 2611	ANNUAL	0.19	100	1
CO				
SOURCE 2601, 2611	1-HR	103	40,000	2,000
	8-HR	36	10,000	500

Notes: Annual maximums are from 5 separate model runs (1982-1986) STAR met data, maximum concentration occurred using 1989 STAR data for all pollutants. Short-term maximums are from 5 separate model runs with 1982-1986 met data, per FDER guidelines.

TABLE 4-6

FGTC PHASE III
Station No. 26
Maximum Modeled Off-Site by Year

Pollutant	Averaging Period	Year of Meteorological Data				
		1982	1983	1984	1985	1986
NO_x	Annual	0.19	0.17	0.18	0.15	0.16
CO	1-hour	92	95	96	101	103

NOTE: All values are in $\mu g/m^3$ unless otherwise indicated.

5.0 REFERENCES

Auer, A.H. 1978. Correlation of Land Use and Cover With Meteorological Anomalies. J. Appl. Meteor., Vol 17.

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U.S. Environmental Protection Agency (USEPA). 1985. Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources. Research Triangle Park, NC.

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U.S. Environmental Protection Agency (USEPA). 1992. User's Guide for the Industrial Source Complex (ISC2) Dispersion Models. Vol. I (Draft). USEPA-450/4-92-2a.

U.S. Environmental Protection Agency (USEPA). (Revised, 1991). USEPA Regulations on National Primary and Secondary Ambient Air Quality Standards. 40 CFR 50; 36FR22384; 43FR118. Research Triangle Park, NC.

U.S. Environmental Protection Agency (USEPA). (Revised 1991). USEPA Regulations on Preparation of Implementation Plans. 40 CFR 51; 36FR22398. Research Triangle Park, NC.

U.S. Environmental Protection Agency (USEPA). (Revised 1991). USEPA Regulations Designating Areas for Air Quality Planning. 40 CFR 81; 35FR22421; 56FR56694. Research Triangle Park, NC.

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U.S. Environmental Protection Agency (USEPA). (Amended 1992). USEPA Regulations on Standards of Performance for New Stationary Sources. 40 CFR 60; 36FR24876. Research Triangle Park, NC.

U.S. Environmental Protection Agency (USEPA). (Amended 1992). USEPA Regulations on National Emission Standards for Hazardous Air Pollutants. 40 CFR 61; 38FR8820. Research Triangle Park, NC.

APPENDIX A

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
AIR DIVISION
PERMIT APPLICATION FORMS

Best Available Copy

AC09-229441
Rcd 4-12-93
Regt# 0180848
\$4500^{00}

Florida Department of Environmental Regulation

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

Lawton Chiles, Governor
Carol M. Browner, Secretary

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Natural Gas Compressor Engine ☒ New[1] ☐ Existing[1]

APPLICATION TYPE: ☒ Construction ☐ Operation ☐ Modification

COMPANY NAME: Florida Gas Transmission Company COUNTY: Citrus

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Station 26, Unit No. 26

SOURCE LOCATION: Street City

UTM: East 353.212 North 3193.897

Latitude 28 ° 51 ' 58 "N Longitude 82 ° 30 ' 18 "W

APPLICANT NAME AND TITLE: Carl D. Schulz, Vice President, Project Management Services, Florida Gas Transmission Company (713) 853-3893

APPLICANT ADDRESS: P.O. Box 1188, Houston, Texas 77251-1188

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Florida Gas Transmission C

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Furthe I agree to maintain and operate the pollution control source and pollution cont facilities in such a manner as to comply with the provision of Chapter 403, Flori Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferab and I will promptly notify the department upon sale or legal transfer of the permitt establishment.

*Attach letter of authorization

Signed:

Carl D. Schulz, Vice President, Project Management Services
Name and Title (Please Type)

Date: 4/7/93 Telephone No. (713) 853-3893

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project ha been [redacted]/examined by me and found to be in conformity with modern engineer principles applicable to the treatment and disposal of pollutants characterized in t permit application. There is reasonable assurance, in my professional judgment, th

---

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

BARRY D. ANDREWS
NO. 36024

Signed Barry D. Andrews

Name (Please Type)

Company Name (Please Type)

Mailing Address (Please Type)

Florida Registration No. 36024 Date: 3/24/93 Telephone No. (205) 740-8240

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

See Application Report, Section 1.0 Introduction
Section 2.0 Project Description

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction February 1994 Completion of Construction 12/1/94

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

Not Applicable

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

Not Applicable

Best Available Copy

F. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr _____; if seasonal, describe: Not Applicable

G. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant?	No
a. If yes, has "offset" been applied?	
b. If yes, has "Lowest Achievable Emission Rate" been applied?	
c. If yes, list non-attainment pollutants.	
2. Does best available control technology (BACT) apply to this source? If yes, see Section VI.	No
3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII.	No
4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source?	Yes
5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source?	No

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? No

a. If yes, for what pollutants? __________

b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
Not Applicable				

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): Not Applicable

2. Product Weight (lbs/hr): Not Applicable

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Emission Point 2601

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
NO_x	9.15	39.1	N/A	N/A	9.15	39.1	
CO	6.64	28.3	N/A	N/A	6.64	28.3	
VOC	0.38	1.6	N/A	N/A	0.38	1.6	
SO_2	1.64	7.2	N/A	N/A	1.64	7.2	
PM	0.29	1.3	N/A	N/A	0.29	1.3	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): ______

2. Product Weight (lbs/hr): ______

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Emission Point 2611

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/hr	T/yr	
NO_x	1.82	0.4	N/A	N/A	1.82	0.4	
CO	0.63	0.1	N/A	N/A	0.63	0.1	
VOC	0.025	0.0	N/A	N/A	0.025	0.0	
PM	0.0045	0.0	N/A	N/A	0.0045	0.0	
SO_2	0.025	0.0	N/A	N/A	0.025	0.0	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): ______________________

2. Product Weight (lbs/hr): ______________________

C. Airborne Contaminants Emitted: *(Information in this table must be submitted for each emission point, use additional sheets as necessary)*

Emission Point T-1

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
VOC	0.02	0.00	N/A	N/A	0.02	0.00	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): ______

2. Product Weight (lbs/hr): ______

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Emission Point T-2

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
VOC	0.00	0.08	N/A	N/A	0.00	0.08	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): ______________________

2. Product Weight (lbs/hr): ______________________

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Emission Point T-3

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
VOC	0.01	0.00	N/A	N/A	0.01	0.00	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): ____________________

2. Product Weight (lbs/hr): ____________________

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Emission Point T-4

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
VOC	0.05	0.00	N/A	N/A	0.05	0.00	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): __________

2. Product Weight (lbs/hr): __________

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Emission Point T-5

Name of Contaminant	Emission[1]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
VOC	0.01	0.00	N/A	N/A	0.01	0.00	

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from operating rate and applicable standard.

[4] Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
Not Applicable				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural Gas	0.057	0.057	59.60

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: 0.031 Percent Ash: N/A

Density: 0.0455 (lb/ft^3) lbs/gal Typical Percent Nitrogen: N/A

Heat Capacity: 23,077 BTU/lb ______ BTU/gal

Other Fuel Contaminants (which may cause air pollution): N/A

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average N/A Maximum ______

G. Indicate liquid or solid wastes generated and method of disposal.

Not Applicable

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Emission Point 2601

Stack Height: 50 ft. Stack Diameter: 3.33 ft.

Gas Flow Rate: 95,039 ACFM 35,942 DSCFM Gas Exit Temperature: 915 °F.

Water Vapor Content: 8 % Velocity: 181.87 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste

Total Weight Incinerated (lbs/hr) Design Capacity (lbs/hr)

Approximate Number of Hours of Operation per day day/wk wks/yr.

Manufacturer

Date Constructed Model No.

	Volume (ft)^3	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: ft. Stack Diamter: Stack Temp.

Gas Flow Rate: ACFM DSCFM* Velocity: FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: ☐ Cyclone ☐ Wet Scrubber ☐ Afterburner

☐ Other (specify)

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Emission Point 2611

Stack Height: 20 ft. Stack Diameter: 0.3 ft.

Gas Flow Rate: 580 ACFM ____ DSCFM Gas Exit Temperature: 1150 °F.

Water Vapor Content: 8 % Velocity: 144.68 FPS

SECTION IV: INCINERATOR INFORMATION

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste ____

Total Weight Incinerated (lbs/hr) ____ Design Capacity (lbs/hr) ____

Approximate Number of Hours of Operation per day ____ day/wk ____ wks/yr. ____

Manufacturer ____

Date Constructed ____ Model No. ____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: ____ ft. Stack Diamter: ____ Stack Temp. ____

Gas Flow Rate: ____ ACFM ____ DSCFM* Velocity: ____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) ____

Brief description of operating characteristics of control devices: ____________________

____

____

____

____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

____

____

____

____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]
   Not Applicable
2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made. See Application Report, Section 2.0, Appendix C, D
3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).
   See Application Report, Appendix C, D
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)
   Not Applicable
5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).
   Not Applicable
6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.
   See Application Report, Figure 2-1
7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).
   See Application Report, Figure 1-1, Figure 2-1
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.
   See Application Report, Appendix B

9. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

Submitted Separately

10. With an application for operation permit, attach a Certificate of Completion of Construction indicating that the source was constructed as shown in the construction permit.

Not Applicable

SECTION VI: BEST AVAILABLE CONTROL TECHNOLOGY

Not Applicable

A. Are standards of performance for new stationary sources pursuant to 40 C.F.R. Part 60 applicable to the source? Subpart GG Stationary Gas Turbine

[X] Yes [ ] No

Contaminant	Rate or Concentration
NO_x	42 ppmv
SO_2	4.5 ppmv

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy) Not Applicable

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Not Applicable

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

Not Applicable

1. Control Device/System:
2. Operating Principles:
3. Efficiency:*
4. Capital Costs:

*Explain method of determining

5. Useful Life: 6. Operating Costs:

7. Energy: 8. Maintenance Cost:

9. Emissions:

Contaminant	Rate or Concentration

10. Stack Parameters

a. Height: ft. b. Diameter: ft.

c. Flow Rate: ACFM d. Temperature: °F.

e. Velocity: FPS

E. Describe the control and treatment technology available (As many types as applicable, use additional pages if necessary). Not Applicable

1.

a. Control Device: b. Operating Principles:

c. Efficiency:[1] d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy:[2] h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

2.

a. Control Device: b. Operating Principles:

c. Efficiency:[1] d. Capital Cost:

e. Useful Life: f. Operating Cost:

g. Energy:[2] h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

[1] Explain method of determining efficiency.
[2] Energy to be reported in units of electrical power - KWH design rate.

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

3.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Cost:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

4.

a. Control Device:

b. Operating Principles:

c. Efficiency:[1]

d. Capital Costs:

e. Useful Life:

f. Operating Cost:

g. Energy:[2]

h. Maintenance Cost:

i. Availability of construction materials and process chemicals:

j. Applicability to manufacturing processes:

k. Ability to construct with control device, install in available space, and operate within proposed levels:

F. Describe the control technology selected: Not Applicable

1. Control Device:

2. Efficiency:[1]

3. Capital Cost:

4. Useful Life:

5. Operating Cost:

6. Energy:[2]

7. Maintenance Cost:

8. Manufacturer:

9. Other locations where employed on similar processes:

a. (1) Company:

(2) Mailing Address:

(3) City:

(4) State:

---

[1] Explain method of determining efficiency.

[2] Energy to be reported in units of electrical power - KWH design rate.

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

b. (1) Company:

(2) Mailing Address:

(3) City: (4) State:

(5) Environmental Manager:

(6) Telephone No.:

(7) Emissions:[1]

Contaminant	Rate or Concentration

(8) Process Rate:[1]

10. Reason for selection and description of systems:

[1] Applicant must provide this information when available. Should this information not be available, applicant must state the reason(s) why.

SECTION VII - PREVENTION OF SIGNIFICANT DETERIORATION Not Applicable

A. Company Monitored Data

1. ________ no. sites ________ TSP ________ ( ) SO^{2}* ________ Wind spd/dir

Period of Monitoring ____/____/____ to ____/____/____
month day year month day year

Other data recorded ____________________

Attach all data or statistical summaries to this application.

*Specify bubbler (B) or continuous (C).

2. Instrumentation, Field and Laboratory

a. Was instrumentation EPA referenced or its equivalent? [ ] Yes [ ] No

b. Was instrumentation calibrated in accordance with Department procedures?

[ ] Yes [ ] No [ ] Unknown

B. Meteorological Data Used for Air Quality Modeling See Application Report, Section 4.0 Appendix F

1. _____ Year(s) of data from ____/____/____ to ____/____/____
month day year month day year

2. Surface data obtained from (location)________________

3. Upper air (mixing height) data obtained from (location)________________

4. Stability wind rose (STAR) data obtained from (location)________________

C. Computer Models Used

1. ________________ Modified? If yes, attach description.

2. ________________ Modified? If yes, attach description.

3. ________________ Modified? If yes, attach description.

4. ________________ Modified? If yes, attach description.

Attach copies of all final model runs showing input data, receptor locations, and principle output tables.

D. Applicants Maximum Allowable Emission Data

Pollutant	Emission Rate	
TSP	________________	grams/sec
SO^2	________________	grams/sec

E. Emission Data Used in Modeling

Attach list of emission sources. Emission data required is source name, description of point source (on NEDS point number), UTM coordinates, stack data, allowable emissions, and normal operating time.

F. Attach all other information supportive to the PSD review.

G. Discuss the social and economic impact of the selected technology versus other applicable technologies (i.e., jobs, payroll, production, taxes, energy, etc.). Include assessment of the environmental impact of the sources.

H. Attach scientific, engineering, and technical material, reports, publications, journals, and other competent relevant information describing the theory and application of the requested best available control technology.

ATTACHMENT A

EMERGENCY GENERATOR
VENDOR INFORMATION

Best Available Copy

EQUIPMENT SPECIFICATION SHEET

PROJECT: FGT Phase III Expansion

ITEM: Emergency Generator Engine

LOCATION: Station 26, Citrus County, FL

REQUISITION NO.: S2107502

ITEM NO.: 90-101-0001

VENDOR: Southern Plains Power

MAXIMUM EMISSION RATES (Rates Vendor guarantees which will not be exceeded over the engine power range in grams per brake horsepower-hour):

NOX:	4.4
CO:	1.5
Non-Methane HC:	0.06

ENGINE PARAMETERS:

Air / Fuel Ratio:	10.5:1
Exhaust Mass Flow (LB/HR):	1856
Exhaust Temperature (°F):	1175 ± 75
Exhaust Stack Inside Diameter:	4"

VENDOR'S SIGNATURE AND DATE: James L Conrad

Nov. 22 1993

James L. Conrad
Senior Technical Representative
SOUTHERN PLAINS POWER, INC.

Engine: Cummins G12 in-line, 6-cylinder
Naturally Aspirated

POWER RATINGS
(without fan)

COMPRESSION RATIO		10:1	12:1
Bore: 5 1/8" (130 mm)			
Stroke: 6" (152 mm)		Propane	Nat. Gas
STANDBY POWER (ENGINE OUTPUT POWER) RATING - HP (Kw) - WITHOUT FAN			
RPM	1800	175(130)	184(137)

Cooling		
Heat Rejection To Coolant	5112	Btu/Min
Coolant Capacity(with radiator)	14.75	US Gal
Coolant Flow Rate	87	Gal/Min
Maximum Coolant Friction Head	5.0	psi
Maximum Coolant Static Head	46	ft
Radiator Fan Load	6.7	HP
Air		
Combustion Air	250	cfm
Maximum Air Cleaner Restriction	10	in H_20
Alternator Cooling Air	950	cfm
Radiator Cooling Air	14000	cfm
Minimum Air Opening to Room	20	sq ft
Minimum Discharge Opening	10	sq ft
Maximum Restriction at Radiator Discharge (static)	0.5	in H_20
Exhaust		
Gas Flow (Full Load) -	913	cfm
Gas Temperature	1350	°F
Maximum Back Pressure	27.2	in H_2O

Data shown above represents gross engine performance capabilities obtained and corrected in accordance with SAE J1349 conditions of 29.61 in. Hg. (100kPa) barometric pressure [300 ft. (91m) altitude], 77° F (25° C) inlet air temperature, and 0.30 in. Hg. (1kPa) water vapor pressure using dry processed natural gas fuel with 905 BTU per standard cubic foot (33.72 k J/l) lower heating value.

Cooling System: High flow centrifugal pump with spin-on corrosion resistor/additive filter. High ambient 125° F radiator cooling system.

Exhaust System: Dry exhaust manifold. High performance tuned.

Fuel System: Balanced intake manifold for even fuel distribution. Impco carburetor developed for high altitude application.

Ignition System: Highly reliable, solid state, breakerless, low tension system. Low cranking speed firing from a magneto-type power source for easy starting. Long spark plug life and fully sealed modular-type electronics for low maintenance.

Lubrication: Positive pressure feed to all bearings and wear surfaces. Includes large tubular oil cooler and high capacity oil pan for extended service intervals. The lube oil capacity is 30 US quarts and the oil that is required is API CD 15W-40. The lube oil filter is the canister type.

Valve Train: Specifically designed for natural gas. Includes hard, high alloy valves, valve inserts, and positive action rotators on intake and exhaust ports.

Speed Control: Adjustable hydraulic governor provides stable RPM control under all load conditions.

EMERGENCY STANDBY RATING

Emergency Standby Rating is applicable for supplying emergency electric power for the duration of the utility power outage. NO OVERLOAD capability is avaiiable for this rating.

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and muffler; not included are alternator, compressor, fan, optional equipment, driven components or installation of a catalytic converter.

Altitude and Ambient Temperature Requirements:

The generator set may be operated at the STANDBY RATING up to 1000 ft. (304m) altitude and 100° F (38° C) inlet air temperature. For sustained operation at high load factors at higher altitudes and temperatures, see Southern Plains Power or your distributor.

FUEL APPLICATION GUIDE

COMPRESSION RATIO	12:1	10:1	8.5:1
Dry, Processed, Natural Gas	X	X	X
Propane (HD-5)	–	X	X

All other gases, such as field gas and digester/sewage gas, will require an analysis and pre-approval from SPP. Consult your Cummins Distributor for details.

APPENDIX B

PLOT PLAN

APPENDIX C

SITE SUMMARY TABLE AND VENDOR DATA

23-Mar-93
CS26.WK1

Phase III Station Characteristics

Compressor Station: Number 26
Name: Homosassa
County: Citrus
Nearest City: Lecanto
Compressor Supervisor: ____________
Mailing Address: ____________
____
Telephone: ____________
Latitude: 28 51' 58"
Longitude: 82 30' 18"
UTM Zone: 17
UTM Easting: 353212
UTM Northing: 3193897
Elevation (ft): 80

ENGINE IDENTIFICATION	2601
Phase III Engine Characteristics	
Operating Time (hr/yr)	8,760
Hours/Day	24
Days/Week	7
Weeks/Year	52
Engine Type	Gas Turbine
Manufacturer	Solar
Model	Centaur-Taurus T-6502
Horsepower Rating (hp) ISO	6,500
Exhaust Temperature (F)	915
Mass Flow Rate (lbs/hr) (a)	164,167
Volumetric Flow Rate (acfm)	95,039
Volumetric Flow Rate (dscfm)	35,942
Ave. Fuel Consumption (MMCF/Hr) (b)	0.057
Max. Fuel Consumption (MMCF/Hr) (b)	0.057
Specific Fuel Consump. (Btu/bhp-hr)	9,169
Maximum Heat Input (MMBtu/Hr)	59.60
Phase III Stack Parameters	
Stack Height (ft)	50
Stack Dimension (Diameter) (ft)	3.33
Stack to Building Offset (ft)	19
Building Height (ft) (c)	30
Building Length (ft) (c)	60
Building Width (ft) (c)	40
Phase III Fuel Characteristics	
Fuel Type	N.G.
Heating Value (Btu/CF)	1040
Heat Capacity (Btu/lb)	22,857
Density (lb/cubic ft)	0.0455
Percent Sulfur (%) (d)	0.031
Percent Ash (%)	N/A

01-Apr-93
CS26.WK1

Phase III Station Characteristics

Compressor Station: Number 26
Name: Homosassa
County: Citrus
Nearest City: Lecanto
Compressor Supervisor: ____________
Mailing Address: ____________
____
Telephone: ____________
Latitude: 28 51' 58"
Longitude: 82 30' 18"
UTM Zone: 17
UTM Easting: 353212
UTM Northing: 3193897
Elevation (ft): 80

ENGINE IDENTIFICATION	2601

Phase III Engine Characteristics

Operating Time (hr/yr)	8,760
Hours/Day	24
Days/Week	7
Weeks/Year	52
Engine Type	Gas Turbine
Manufacturer	Solar
Model	Centaur-Taurus T-6502
Horsepower Rating (hp) ISO	6,500
Exhaust Temperature (F)	915
Mass Flow Rate (lbs/hr) (a)	164,167
Volumetric Flow Rate (acfm)	95,039
Volumetric Flow Rate (dscfm)	35,942
Ave. Fuel Consumption (MMCF/Hr) (b)	0.057
Max. Fuel Consumption (MMCF/Hr) (b)	0.057
Specific Fuel Consump. (Btu/bhp-hr)	9,169
Maximum Heat Input (MMBtu/Hr)	59.60

Phase III Stack Parameters

Stack Height (ft)	50
Stack Dimension (Diameter) (ft)	3.33
Stack to Building Offset (ft)	19
Building Height (ft) (c)	30
Building Length (ft) (c)	60
Building Width (ft) (c)	40

Phase III Fuel Characteristics

Fuel Type	N.G.
Heating Value (Btu/CF)	1040
Heat Capacity (Btu/lb)	22,857
Density (lb/cubic ft)	0.0455
Percent Sulfur (%) (d)	0.031
Percent Ash (%)	N/A

01-Apr-93
CS26.WK1

ENGINE IDENTIFICATION 2601

Phase III Total Emissions Rates by Engine for Station 26

Grams/BHP-Hour		
	NOX	0.622
	CO	0.451
	NMHC	0.026
	SO2 (e)	0.114
	PM (f)	0.020
Pounds/Hour		
	NOX	8.92
	CO	6.46
	NMHC	0.37
	SO2	1.64
	PM	0.29
Tons/Year		
	NOX	39.05
	CO	28.29
	NMHC	1.62
	SO2	7.18
	PM	1.27

Notes:
(a) Wet mass flow (@ 60 F, 14.7 psi).
(b) Based on heating value of fuel gas.
(c) Engine 1 is enclosed in a building.
(d) Percent by weight.
(e) Based on 10 grains S/100 SCF n.g. (assume full conversion).
(f) Based AP-42 factor of 5 lbs/MMSCF.

23-Mar-93
CS26EG.WK1

ENGINE IDENTIFICTATION 2

Phase III Emissions Rates for Emergency Generator at Station 26

Grams/BHP-Hour		
	NOX	8.10
	CO	2.80
	HC	1.10
	NMHC	0.11
	SO2 (e)	0.11
	PM (f)	0.020

Pounds/Hour		Maximum
	NOX	1.82
	CO	0.63
	HC	0.25
	NMHC	0.025
	SO2	0.025
	PM	0.0045

Tons/Year		Restricted (400 hr/yr)
	NOX	0.36
	CO	0.13
	HC	0.049
	NMHC	0.005
	SO2	0.005
	PM	0.0009

Notes:
(a) Wet mass flow (@ 60 F, 14.7 psi).
(b) Based on heating value of fuel gas.
(c) Engine enclosed in auxillary building.
(d) Percent by weight.
(e) Based on 10 grains S/100 SCF n.g. (assume full conversion).
(f) Based AP-42 factor of 5 lbs/MMSCF.

CATERPILLAR
Solar Turbines

PO Box 85376
San Diego, CA 92186-5376

9280 Sky Park Court
San Diego, CA 92123

Telecopier Cover Letter

NUMBER OF PAGES INCLUDING THIS COVER PAGE: 4

DATE: January 12, 1993

TO: Ron Wood - ENRON FAX: 713 646-2752
TEL: 713 853-4764

COPY: Louis Dooley - SOLAR HOUSTON FAX: 713 939-1230
John Goss - SOLAR HOUSTON FAX: 713 939-1230
Jerry Napierala - SOLAR SD FAX: 619 694-6267

FROM: Nat Castañeda - SP3 TEL: 619 694-6109
FAX: 619 694-6267

SUBJ: Gas Turbine Horsepower at 100% Speed

Ron,
Attached please find the performance information you requested at full load, ISO conditions.

Please call me if I can be of further assistance.

Regards,
Nat

Nat Castañeda
Sr. Project Applications Engineer

NEW EQUIPMENT PREDICTED EMISSION PERFORMANCE
DATA FOR POINT NUMBER 1

Fuel: GAS Customer: ENRON/FLORIDA GAS TRANSMISSION
Water Injection: NO Inquiry Number: HO1-059
Number of Engines Tested: 4
Model: CENTAUR TAURUS T-6500 CS/MD 59 F MATCH

CRITICAL WARNINGS IN USE OF DATA FOR PERMITTING

1. It is recommended that permit values be based on full load gas turbine and ISO standard test conditions. ISO standard test condition should be referenced on the permit so that when site testing is performed, the necessary corrections can be made.

2. Nominal values are based on actual test results. The maximum expected values are obtained by applying the tolerance to the nominal values. Solar suggests using maximum expected values for permitting (for example, +200% multiply value submitted by 3 to use for permit value).

3. Upon written request, Solar will provide a single point guarantee for specific conditions submitted.

The following predicted emissions performance is based on the following specific single point: HP= 6500., %Full Load=100.0, ALT= 0.0', %RH= 60.0, TEMP= 59.0 F

NOx	(+)	CO	(+)	UHC	(+)	
81.73	20%	5.62	200%	2.72	400%	PPMvd at 15% O2
75.98	20%	3.18	200%	0.88	400%	TON/YR
0.33	20%	0.01	200%	0.00378	400%	LBm/MMBTU -(FUEL LHV)

OTHER IMPORTANT NOTES

1. If SoLoNOx is to be retrofitted in the future, use no less than 50 ppmV CO for permitting.

2. Ambient and load correction information will be submitted by Solar for CO prior to actual field test. NOx correction for ambient conditions will be based on US 40 CFR 60 subpart GG. Permit conditions should allow correction for load and ambient temperature.

3. Solar does not provide maximum values for water-to-fuel ratio, SOX, particulates, or conditions outside those above without separate written approval.

4. Solar can optionally provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.

5. Fuel must meet Solar standard fuel specification ES 9-98. Predicted emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.

6. If the above information is being used regarding existing equipment, it should be verified by actual site testing.

SOLAR TURBINES INCORPORATED DATE RUN: 12-JAN-93
ENGINE PERFORMANCE DATA REV. 1.5
EXHAUST GAS AND EMISSION DATA REV. 1.2
TEXT CHANGES REV. 1.1
JOB ID : ENRON

CENTAUR
TAURUS T-6500
CS/MD
59 F MATCH
GAS FUEL

PREDICTED NOMINAL PERFORMANCE

FUEL TYPE	SD NATURAL GAS
ELEVATION, FEET	0.
INLET LOSS, IN. H20	0.0
EXHAUST LOSS, IN. H20	0.0
AMB TEMP, DEG. F	59.0
REL HUMI, PCT	60.0
INLET LOSS HP	0.
EXHAUST LOSS HP	0.
COMP OR PUMP RPM	12727.
OPTIMUM RPM	12727.
NET OUTPUT POWER (HP)	6500.
FUEL FLOW, MMBTU/HR	53.30
HEAT RATE , BTU/HP-HR	8200.
INLET AIR FLOW, LB/HR	162000.
ENGINE EXH FLOW, LB/HR	164167.
PCD P.S.I.G.	146.8
P.T. INLET TEMP. DEG. F	1312.
COMPENSATED PTIT DEG. F	1400.
ENGINE EXH TEMP, DEG. F	915.

CATERPILLAR
Solar Turbines

Solar Turbines Incorporated
P.O. Box 85376
San Diego, CA 92186-5376

This Transmission from:
9280 Skypark Court
San Diego, CA 92123 U.S.A.

Project Applications Engineering Dept.
FAX Number (619) 694-6267

- TELECOPIER COVER LETTER -

TO: Tom Gardiner DATE: February 19, 1993

COMPANY/CITY: Enron/ENSR 713-520-8102

COPIES TO: L.Dooley M.Castenada

W.Leland

REFERENCE: Florida Gas

FROM: Jerry Napierala

If you do not receive all pages, please call (619) 694-6512.

Attached are the maximum levels in lb/hr for the Mars T-12000 and the Centaur T-6500. The values are nominal so the margins listed have to be added. The margins are high primarily because we have very little data at cold ambients.

Please call if you have any questions.

Regards,

SOLAR TURBINES INCORPORATED DATE RUN: 19-FEB-93
ENGINE PERFORMANCE DATA REV. 1.6
EXHAUST GAS AND EMISSION DATA REV. 1.4
TEXT CHANGES REV. 1.1
JOB ID : 0

NEW EQUIPMENT PREDICTED EMISSION PERFORMANCE
DATA FOR POINT NUMBER 1

Fuel: GAS
Water Injection: NO
Number of Engines Tested: 4
Model: CENTAUR TAURUS T-6500 CS/MD

Customer: Enron
Inquiry Number:

59 F MATCH

CRITICAL WARNINGS IN USE OF DATA FOR PERMITTING

1. It is recommended that permit values be based on full load gas turbine and ISO standard test conditions. ISO standard test condition should be referenced on the permit so that when site testing is performed, the necessary corrections can be made.

2. Nominal values are based on actual test results. The maximum expected values are obtained by applying the tolerance to the nominal values. Solar suggests using maximum expected values for permitting (for example, +200% multiply value submitted by 3 to use for permit value).

3. Upon written request, Solar will provide a single point guarantee for specific conditions submitted.

The following predicted emissions performance is based on the following specific single point: (see attached)

HP= 6714., %Full Load=100.0, ALTITUDE= 0.0 FEET, %RH= 60.0, TEMP= 40.0 F

NOx	(+)	CO	(+)	UHC	(+)	
81.51	25%	9.64	250%	2.76	450%	PPMvd at 15% O2
17.75	25%	1.28	250%	0.21	450%	LBm/Hr
1.20	25%	0.09	250%	0.01	450%	g/(HP-Hr) (GAS TURBINE SHAFT POWER)

OTHER IMPORTANT NOTES

1. If SoLoNOx is to be retrofitted in the future, use no less than 50 ppmV CO for permitting.

2. Ambient and load correction information will be submitted by Solar for CO prior to actual field test. NOx correction for ambient conditions will be based on US 40 CFR 60 subpart GG. Permit conditions should allow correction for load and ambient temperature.

3. Solar does not provide maximum values for water-to-fuel ratio, SOX, particulates, or conditions outside those above without separate written approval.

4. Solar can optionally provide factory testing in San Diego to ensure the actual unit(s) meet the above values within the tolerances quoted. Pricing and schedule impact will be provided upon request.

5. Fuel must meet Solar standard fuel specification ES 9-98. Predicted emissions are based on the attached fuel composition, or, San Diego natural gas or equivalent.

6. If the above information is being used regarding existing equipment, it should be verified by actual site testing

```
SOLAR TURBINES INCORPORATED                       DATE RUN: 19-FEB-93
ENGINE PERFORMANCE DATA          REV. 1.6
EXHAUST GAS AND EMISSION DATA    REV. 1.4
TEXT CHANGES                     REV. 1.1
JOB ID : 0

                 CENTAUR
                 TAURUS T-6500
                 CS/MD
                 59 F MATCH
                 GAS FUEL

          DATA FOR NOMINAL PERFORMANCE
              *** PRELIMINARY ***


    FUEL TYPE                    SD NATURAL GAS
    ELEVATION, FEET                          0.
    INLET LOSS, IN. H20                     0.0
    EXHAUST LOSS, IN. H20                   0.0

    AMB TEMP, DEG. F              40.0

    REL HUMI, PCT                 60.0
    INLET LOSS HP                   0.
    EXHAUST LOSS HP                 0.

    COMP OR PUMP RPM            12754.
    OPTIMUM RPM                 12754.
    NET OUTPUT POWER (HP)        6714.

    FUEL FLOW, MMBTU/HR          54.51
    HEAT RATE , BTU/HP-HR        8119.
    INLET AIR FLOW, LB/HR      166533.
    ENGINE EXH FLOW, LB/HR     168746.
    PCD  P.S.I.G.                150.4
    P.T. INLET TEMP. DEG. F      1290.
    COMPENSATED PTIT DEG. F      1378.
    ENGINE EXH TEMP, DEG. F       894.
```

APPENDIX D

SUPPORTING CALCULATIONS

CALCULATION OF NORMAL POLLUTANT EMISSION FACTORS FOR SOLONOX TURBINE:

COMPRESSOR ENGINE (WITHOUT SOLONOX):

Engine No. 2601:

Engine Rating (ISO)	=	6,500 bhp
Brake Specific Fuel Consumption	=	9,169 Btu/bhp-hr
Maximum Fuel Consumption	=	0.057 MMscf/hr

NORMAL OPERATION:

	PPM	TPY	
NO_x:	81.73	75.98	Manufacturer's Data
CO:	5.62	3.18	Manufacturer's Data
UHC:	2.72	0.88	Manufacturer's Data

COMPRESSOR ENGINE WITH SOLONOX:

Engine No. 2601:

CALCULATION OF NORMAL OPERATION EMISSIONS IN TONS/YR WITH SOLONOX

tons/yr = tons/yr (w/o SOLONOX) * (PPM (with SOLONOX)/ PPM (without SOLONOX)

	PPM	TPY	
NO_x:	42.0	39.05	Manufacturer's Data
CO:	50.0	28.29	Manufacturer's Data
UHC:	50.0	16.18	Manufacturer's Data

CALCULATION OF NORMAL OPERATION GRAMS/BHP-HR

lbs/hr = (tons/yr) * (2000 lbs/ton) * (1 yr/ 8760 hrs)

grams/bhp-hr = (lbs/hr * (453.6 grams/1 lb))/ bhp

NO_x: 0.622 grams/bhp-hr Manufacturer's Data

CO:	0.451 grams/bhp-hr	Manufacturer's Data
UHC:	0.26 grams/bhp-hr	Manufacturer's Data
NMHC:	0.026 grams/bhp-hr	(10% of UHC)
SO_2:	10 grains/100 CF 0.114 grams/bhp-hr	Contract Limit on Sulfur Content

lb SO_2/hr = 10 grains/100 CF * 1 lb/7,000 grains * Btu/bhp-hr * bhp * 1 CF/1,040 Btu * 64 lb SO_2/32 lb S

= 10 grains/100 CF * 1 lb/7,000 grains * 9,169 Btu/bhp-hr * 6,500 bhp * 1 CF/1,040 Btu * 64 lb SO_2/32 lb S

= 1.64 lb SO_2/hr

grams/bhp-hr = lb SO_2/hr * 453.6 g/lb * 1/bhp

= 1.64 lb SO_2/hr * 453.6 g * 1/6,500 bhp

= 0.114 grams/bhp-hr

PM:	5 lbs/10^6 CF 0.020 grams/bhp-hr	Table 1.4-1, AP-42

lb PM/hr = 5 lb PM/10^6 CF * CF/hr

= 5 lb PM/10^6 CF * 0.057 MMCF/hr

= 0.29 lb PM/hr

grams/bhp-hr = lb PM/hr * 453.6 g/1 lb * 1/bhp

= 0.29 lb PM/hr * 453.6 g/ lb * 1/6,500 bhp

= 0.020 grams/bhp-hr

CALCULATION OF WORST CASE POLLUTANT EMISSION FACTORS FOR SOLONOX TURBINE:

COMPRESSOR ENGINE (WITHOUT SOLONOX):

Engine No. 2601:

Engine Rating (ISO) = 6,500 bhp

WORST CASE:

	PPM	lb/hr	
NO_x:	81.51	17.75	Manufacturer's Data
CO:	9.64	1.28	Manufacturer's Data
UHC:	2.76	0.21	Manufacturer's Data

COMPRESSOR ENGINE WITH SOLONOX:

Engine No. 2601:

CALCULATION OF WORST CASE EMISSIONS IN LB/HR WITH SOLONOX

lb/hr = lb/hr (w/o SOLONOX) * (PPM (with SOLONOX)/ PPM (without SOLONOX)

	PPM	lb/hr	
NO_x:	42.0	9.15	Manufacturer's Data
CO:	50.0	6.64	Manufacturer's Data
UHC:	50.0	3.80	Manufacturer's Data

CALCULATION OF GRAMS/BHP-HR

grams/bhp-hr = (lbs/hr * (453.6 grams/1 lb))/bhp

NO_x:	0.639 grams/bhp-hr	Manufacturer's Data
CO:	0.463 grams/bhp-hr	Manufacturer's Data
UHC:	0.27 grams/bhp-hr	Manufacturer's Data
NMHC:	0.027 grams/bhp-hr	(10% of UHC)

SO_2:	10 grains/100 CF 0.114 grams/bhp-hr	Contract Limit on Sulfur Content
PM:	5 lbs/10^6 CF 0.020 grams/bhp-hr	Table 1.4-1, AP-42

CRITERIA POLLUTANT
EMISSION CALCULATIONS

MAXIMUM HEAT INPUT:

COMPRESSOR ENGINE:

Engine No. 2601:

Fuel Heating Value = 1,040 Btu/scf
Engine Rating = 6,500 bhp
Brake Specific Fuel Consumption = 9,169 Btu/bhp-hr
Maximum Heat Input = MMBtu/Hr = (Btu/bhp-hr * hp)/10^6
= (9,169 * 6,500)/10^6
= 59.60 MMBtu/hr

Gas Consumption = MMscf/hr = (59.60 MMBtu/hr/1040 Btu/CF)
= 0.057 MMscfh

POLLUTANT EMISSION FACTORS FOR SOLONOX TURBINE:

COMPRESSOR ENGINES:

Engine No. 2601:

NORMAL OPERATION:

NO_x:	0.622 grams/bhp-hr	Manufacturer's Data
CO:	0.451 grams/bhp-hr	Manufacturer's Data
UHC:	0.26 grams/bhp-hr	Manufacturer's Data
NMHC:	0.026 grams/bhp-hr	(10% of UHC)
SO_2:	10 grains/100 CF	Contract Limit on Sulfur Content
	0.114 grams/bhp-hr	
PM:	5 lbs/10^6 CF	Table 1.4-1, AP-42
	0.020 grams/bhp-hr	

WORST CASE:

NO_x:	0.639 grams/bhp-hr	Manufacturer's Data
CO:	0.463 grams/bhp-hr	Manufacturer's Data
UHC:	0.27 grams/bhp-hr	Manufacturer's Data
NMHC:	0.027 grams/bhp-hr	(10% of UHC)
SO_2:	10 grains/100 CF 0.114 grams/bhp-hr	Contract Limit on Sulfur Content
PM:	5 lbs/10^6 CF 0.020 grams/bhp-hr	Table 1.4-1, AP-42

HOURS OF OPERATION:

The compressor engine is analyzed as if it has a potential to operate 8,760 hours per year.

NO_x EMISSIONS

COMPRESSOR ENGINES

Engine No. 2601:

NORMAL OPERATION:

lb NO_x/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.622 grams/bhp-hr) * (0.002205 lb/gram) * (6,500 bhp)

= 8.92 lb/hour

tons NO_x/yr = (lb NO_x/hr) * (8760 hr/yr) / (2000 lb/ton)

= (8.92 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 39.05 tons/year

WORST CASE:

lb NO_x/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.639 grams/bhp-hr) * (0.002205 lb/gram) * (6,500 bhp)

= 9.15 lb/hour

Emissions Summary:

NORMAL OPERATION:

lb NO_x/hr = 8.92 lb NO_x/hr

tons NO_x/yr = 39.05 TPY NO_x

WORST CASE:

lb NO_x/hr = 9.15 lb NO_x/hr

CO EMISSIONS

COMPRESSOR ENGINES

Engine No. 2601:

NORMAL OPERATION:

lb CO/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.451 grams/bhp-hr) * (0.002205 lb/gram) * (6,500 bhp)

= 6.46 lb/hour

tons CO/yr = (lb CO/hr) * (8760 hr/yr) / (2000 lb/ton)

= (6.46 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 28.29 tons/year

WORST CASE:

lb CO/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.463 grams/bhp-hr) * (0.002205 lb/gram) * (6,500 bhp)

= 6.64 lb/hour

Emissions Summary:

NORMAL OPERATION:

lb CO/hr = 6.46 lb CO/hr

tons CO/yr = 28.29 TPY CO

lb CO/hr = 6.64 lb CO/hr

NMHC EMISSIONS

COMPRESSOR ENGINES

Engine No. 2601:

NORMAL OPERATION:

lb NMHC/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.026 grams/bhp-hr) * (0.002205 lb/gram) * (6,500 bhp)

= 0.37 lb/hour

tons NMHC/yr = (lb NMHC/hr) * (8760 hr/yr) / (2000 lb/ton)

= (0.37 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 1.62 tons/year

WORST CASE:

lb NMHC/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.027 grams/bhp-hr) * (0.002205 lb/gram) * (6,500 bhp)

= 0.38 lb/hour

Emissions Summary:

NORMAL OPERATION:

lb NMHC/hr = 0.37 lb NMHC/hr

tons NMHC/yr = 1.62 TPY NMHC

WORST CASE:

lb NMHC/hr = 0.38 lb NMHC/hr

SO_2 EMISSIONS

COMPRESSOR ENGINES

Engine No. 2601:

NORMAL OPERATION = WORST CASE

lb SO_2/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.114 grams/bhp-hr) * (0.002205 lb/gram) * (6,500 bhp)

= 1.64 lb/hour

tons SO_2/yr = (lb SO_2/hr) * (8760 hr/yr) / (2000 lb/ton)

= (1.64 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 7.18 tons/year

Emissions Summary:

lb SO_2/hr = 1.64 lb SO_2/hr

tons SO_2/yr = 7.18 TPY SO_2

PM EMISSIONS

COMPRESSOR ENGINES

Engine No. 2601:

NORMAL OPERATION = WORST CASE

lb PM/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.020 grams/bhp-hr) * (0.002205 lb/gram) * (6,500 bhp)

= 0.29 lb/hour

tons PM/yr = (lb PM/hr) * (8760 hr/yr) / (2000 lb/ton)

= (0.29 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 1.26 tons/year

Emissions Summary:

lb PM/hr = 0.29 lb PM/hr

tons PM/yr = 1.26 TPY PM

CRITERIA POLLUTANT
EMISSION CALCULATIONS

MAXIMUM HEAT INPUT:

EMERGENCY ELECTRICAL GENERATOR:

Generator No. 1:

Engine Rating	= 102 bhp
Brake Specific Fuel Consumption	= 9,075 Btu/bhp-hr
Maximum Heat Input = MMBtu/Hr	= (Btu/bhp-hr * hp)/10^6
	= (9,075 * 102)/10^6
	= 0.93 MMBtu/hr
	= 890 CF/hr

POLLUTANT EMISSION FACTORS:

EMERGENCY ELECTRICAL GENERATOR:

Generator No. 1:

NO_x:	8.10 grams/bhp-hr	Manufacturer's Data
CO:	2.80 grams/bhp-hr	Manufacturer's Data
HC:	1.10 grams/bhp-hr	Manufacturer's Data
NMHC:	0.11 grams/bhp-hr	(10% of HC)
SO_2:	10 grains/100 CF	Contract Limit on Sulfur Content
	0.11 grams/bhp-hr	
PM:	5 lb/10^6 CF	Table 1.4-1, AP-42
	0.020 grams/bhp-hr	

HOURS OF OPERATION:

The generator will operate no more than 400 hours per year.

NO_x EMISSIONS

EMERGENCY ELECTRICAL GENERATOR

Generator No. 1:

lb NO_x/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (8.10 grams/bhp-hr) * (0.002205 lb/gram) * (102 bhp)

= 1.82 lb/hour

tons NO_x/yr = (lb NO_x/hr) * (400 hr/yr) / (2000 lb/ton)

= (1.82 lb/hr) * (400 hr/yr) / (2000 lb/ton)

= 0.36 tons/year

Emissions Summary:

lb NO_x/hr = 1.82 lb NO_x/hr

tons NO_x/yr = 0.36 TPY NO_x

CO EMISSIONS

EMERGENCY ELECTRICAL GENERATOR

Generator No. 1:

lb CO/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (2.80 grams/bhp-hr) * (0.002205 lb/gram) * (102 bhp)

= 0.63 lb/hour

tons CO/yr = (lb CO/hr) * (400 hr/yr) / (2000 lb/ton)

= (0.63 lb/hr) * (400 hr/yr) / (2000 lb/ton)

= 0.13 tons/year

Emissions Summary:

lb CO/hr = 0.63 lb CO/hr

tons CO/yr = 0.13 TPY CO

NMHC EMISSIONS

EMERGENCY ELECTRICAL GENERATOR

Generator No. 1:

lb NMHC/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.11 grams/bhp-hr) * (0.002205 lb/gram) * (102 bhp)

= 0.025 lb/hour

tons NMHC/yr = (lb NMHC/hr) * (400 hr/yr) / (2000 lb/ton)

= (0.025 lb/hr) * (400 hr/yr) / (2000 lb/ton)

= 0.005 tons/year

Emissions Summary:

lb NMHC/hr = 0.025 lb NMHC/hr

tons NMHC/yr = 0.005 TPY NMHC

SO_2 EMISSIONS

EMERGENCY ELECTRICAL GENERATOR

Generator No. 1:

lb SO_2/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.11 grams/bhp-hr) * (0.002205 lb/gram) * (102 bhp)

= 0.025 lb/hour

tons SO_2/yr = (lb SO_2/hr) * (400 hr/yr) / (2000 lb/ton)

= (0.025 lb/hr) * (400 hr/yr) / (2000 lb/ton)

= 0.005 tons/year

Emissions Summary:

lb SO_2/hr = 0.025 lb SO_2/hr

tons SO_2/yr = 0.005 TPY SO_2

PM EMISSIONS

EMERGENCY ELECTRICAL GENERATOR

Generator No. 1:

lb PM/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.020 grams/bhp-hr) * (0.002205 lb/gram) * (102 bhp)

= 0.0045 lb/hour

tons PM/yr = (lb PM/hr) * (400 hr/yr) / (2000 lb/ton)

= (0.0045 lb/hr) * (400 hr/yr) / (2000 lb/ton)

= 0.0009 tons/year

Emissions Summary:

lb PM/hr = 0.0045 lb PM/hr

tons PM/yr = 0.0009 TPY PM

FIXED ROOF TANK CALCULATIONS
AP–42 – Fourth Edition – 1990

Symbol	Description	Units	Value	References
	Tank Identification	C.S. 26 – Tank 1		
	Contents	New Lube Oil (pressurized = 15 psig)		
Mv	Vapor Molecular Weight	(lb/lb mol)	190	(See AP–42, Table 4.3–2)
	Liquid Temp.	degrees F		
	Max		90.4	
	Avg		72.2	
	Constants for Calc of True Vapor Press			
	A			(See EPA, 1990)
	B			(See EPA, 1990)
	C			(See EPA, 1990)
P	True Vapor Pressure	(psia)		
	@ Max Temp		0.0019	(See Note)
	@ Avg Temp		0.0019	
Wl	Density	(lb/gal)		(See EPA, 1990)
	Tank Height	(feet)	13.7	
D	Tank Diameter	(feet)	5	
V	Tank Volume	(gallons)	2,000	
	Tank Throughput	(gal/yr)	300	
Kc	Product Factor		1	
FRm	Maximum Fill Rate	(gal/hr)	2,000	
Pa	Avg. Atm. Pressure	(psia)	14.7	
T	Avg. Diurnal Delta T	degrees F	21	
H	Avg. Vapor Space Ht.	(feet)	6.85	(1/2 Tank Hgt. if Unknown)
Fp	Paint Factor		1.4	(See AP–42, Table 4.3–1)
C	Adj. for Small Tanks		0.25	(See AP–42, Fig. 4.3–4)
N	Turnovers	#/yr	0.15	(Annual throughput/V)
Kn	Turnover Factor		1	(See AP–42, Fig. 4.3–7)

Equations:

Lb	Breathing Loss	(lb/yr)	0.0226*Mv*(P/(14.7–P)) ^ 0.68*D ^ 1.73*H ^ 0.51* T ^ 0.5*Fp*C*Kc	
Lw	Working Loss	(lb/yr)	2.4*10 ^ –5*Mv*P*V*N*Kn*Kc	
	Annual Loss	(tons/yr)	(Lb+Lw)/2000	
	Max. Short–term Loss	(lb/hr)	(Lw, lb/yr * FRm)/(N * V)	(TACB, 1992)

		@Max Temp	@Avg Temp
Breathing Loss (Lb)	(lb/yr)	0.00 (as tank is pressurized)	0.00 (as tank is pressurized)
Working Loss (Lw)	(lb/yr)	0.00	0.00
Max. Short–term Loss	(lb/hr)	0.02	0.02
Annual Loss	(tons/year)	0.00	0.00

Note: Vendor information indicates a vapor pressure of <0.1 mm Hg.

FIXED ROOF TANK CALCULATIONS
AP–42 – Fourth Edition – 1990

Symbol	Description	Units	Value	References
	Tank Identification	C.S. 26 – Tank 2		
	Contents	Condensate		
Mv	Vapor Molecular Weight	(lb/lb mol)	53	ENRON
	Liquid Temp.	degrees F		
	Max		90.4	
	Avg		72.2	
	Constants for Calc of True Vapor Press			
	A			(See EPA, 1990)
	B			(See EPA, 1990)
	C			(See EPA, 1990)
P	True Vapor Pressure	(psia)		
	@ Max Temp		2.8000	ENRON
	@ Avg Temp		2.8000	
Wl	Density	(lb/gal)		(See EPA, 1990)
	Tank Height	(feet)	8	
D	Tank Diameter	(feet)	9.5	
V	Tank Volume	(gallons)	4,200	
	Tank Throughput	(gal/yr)	578,460	
Kc	Product Factor		1	
FRm	Maximum Fill Rate	(gal/hr)	66	
Pa	Avg. Atm. Pressure	(psia)	14.7	
T	Avg. Diurnal Delta T	degrees F	21	
H	Avg. Vapor Space Ht.	(feet)	4	(1/2 Tank Hgt. if Unknown)
Fp	Paint Factor		1.4	(See AP–42, Table 4.3–1)
C	Adj. for Small Tanks		0.5	(See AP–42, Fig. 4.3–4)
N	Turnovers	#/yr	137.7	(Annual throughput/V)
Kn	Turnover Factor		0.39	(See AP–42, Fig. 4.3–7)

Equations:

Lb	Breathing Loss	(lb/yr)	0.0226*Mv*(P/(14.7–P))^0.68*D^1.73*H^0.51* T^0.5*Fp*C*Kc	
Lw	Working Loss	(lb/yr)	2.4*10^–5*Mv*P*V*N*Kn*Kc	
	Annual Loss	(tons/yr)	(Lb+Lw)/2000	
	Max. Short–term Loss	(lb/hr)	(Lw, lb/yr * FRm)/(N * V)	(TACB, 1992)

		@Max Temp	@Avg Temp
Breathing Loss (Lb)	(lb/yr)	143.15	143.15
Working Loss (Lw)	(lb/yr)	12.63	12.63
Max. Short–term Loss	(lb/hr)	0.00	0.00
Annual Loss	(tons/year)	0.08	0.08

FIXED ROOF TANK CALCULATIONS
AP–42 – Fourth Edition – 1990

Symbol	Description	Units	Value	References
	Tank Identification	C.S. 26 – Tank 5		
	Contents	Oily Water Tank		
Mv	Vapor Molecular Weight	(lb/lb mol)	190	(See AP–42, Table 4.3–2)
	Liquid Temp.	degrees F		
	Max		90.4	
	Avg		72.2	
	Constants for Calc of True Vapor Press			
	A			(See EPA, 1990)
	B			(See EPA, 1990)
	C			(See EPA, 1990)
P	True Vapor Pressure	(psia)		
	@ Max Temp		0.0019	(See Note)
	@ Avg Temp		0.0019	
Wl	Density	(lb/gal)		(See EPA, 1990)
	Tank Height	(feet)	8	
D	Tank Diameter	(feet)	9.5	
V	Tank Volume	(gallons)	4,200	
	Tank Throughput	(gal/yr)	3,600	
Kc	Product Factor		1	
FRm	Maximum Fill Rate	(gal/hr)	1,800	
Pa	Avg. Atm. Pressure	(psia)	14.7	
T	Avg. Diurnal Delta T	degrees F	21	
H	Avg. Vapor Space Ht.	(feet)	4	(1/2 Tank Hgt. if Unknown)
Fp	Paint Factor		1.4	(See AP–42, Table 4.3–1)
C	Adj. for Small Tanks		0.5	(See AP–42, Fig. 4.3–4)
N	Turnovers	#/yr	0.86	(Annual throughput/V)
Kn	Turnover Factor		1	(See AP–42, Fig. 4.3–7)

Equations:

Lb	Breathing Loss	(lb/yr)	0.0226*Mv*(P/(14.7–P)) ^0.68*D^1.73*H^0.51* T^0.5*Fp*C*Kc	
Lw	Working Loss	(lb/yr)	2.4*10^–5*Mv*P*V*N*Kn*Kc	
	Annual Loss	(tons/yr)	(Lb+Lw)/2000	
	Max. Short–term Loss	(lb/hr)	(Lw, lb/yr * FRm)/(N * V)	(TACB, 1992)

		@Max Temp	@Avg Temp
Breathing Loss (Lb)	(lb/yr)	3.11	3.11
Working Loss (Lw)	(lb/yr)	0.01	0.01
Max. Short–term Loss	(lb/hr)	0.01	0.01
Annual Loss	(tons/year)	0.00	0.00

Note: Vendor information indicates a vapor pressure of <0.1 mm Hg.

FIXED ROOF TANK CALCULATIONS
AP–42 – Fourth Edition – 1990

Symbol	Description	Units	Value	References
	Tank Identification	C.S. 26 – Tank 3		
	Contents	Oily Water Tank		
Mv	Vapor Molecular Weight	(lb/lb mol)	190	(See AP–42, Table 4.3–2)
	Liquid Temp.	degrees F		
	Max		90.4	
	Avg		72.2	
	Constants for Calc of True Vapor Press			
	A			(See EPA, 1990)
	B			(See EPA, 1990)
	C			(See EPA, 1990)
P	True Vapor Pressure	(psia)		
	@ Max Temp		0.0019	(See Note)
	@ Avg Temp		0.0019	
Wl	Density	(lb/gal)		(See EPA, 1990)
	Tank Height	(feet)	2.5	
D	Tank Diameter	(feet)	4.5	
V	Tank Volume	(gallons)	300	
	Tank Throughput	(gal/yr)	3,600	
Kc	Product Factor		1	
FRm	Maximum Fill Rate	(gal/hr)	600	
Pa	Avg. Atm. Pressure	(psia)	14.7	
T	Avg. Diurnal Delta T	degrees F	21	
H	Avg. Vapor Space Ht.	(feet)	2	(1/2 Tank Hgt. if Unknown)
Fp	Paint Factor		1.4	(See AP–42, Table 4.3–1)
C	Adj. for Small Tanks		0.16	(See AP–42, Fig. 4.3–4)
N	Turnovers	#/yr	12.00	(Annual throughput/V)
Kn	Turnover Factor		1	(See AP–42, Fig. 4.3–7)

Equations:

Lb	Breathing Loss	(lb/yr)	0.0226*Mv*(P/(14.7–P)) ^ 0.68*D ^ 1.73*H ^ 0.51* T ^ 0.5*Fp*C*Kc	
Lw	Working Loss	(lb/yr)	2.4*10 ^ –5*Mv*P*V*N*Kn*Kc	
	Annual Loss	(tons/yr)	(Lb+Lw)/2000	
	Max. Short–term Loss	(lb/hr)	(Lw, lb/yr * FRm)/(N * V)	(TACB, 1992)

		@Max Temp	@Avg Temp
Breathing Loss (Lb)	(lb/yr)	0.19	0.19
Working Loss (Lw)	(lb/yr)	0.06	0.06
Max. Short–term Loss	(lb/hr)	0.01	0.01
Annual Loss	(tons/year)	0.00	0.00

Note: Vendor information indicates a vapor pressure of <0.1 mm Hg.

FIXED ROOF TANK CALCULATIONS
AP–42 – Fourth Edition – 1990

Symbol	Description	Units	Value	References
	Tank Identification	C.S. 26 – Tank 4		
	Contents	Used Lube Oil		
Mv	Vapor Molecular Weight	(lb/lb mol)	190	(See AP–42, Table 4.3–2)
	Liquid Temp.	degrees F		
	Max		90.4	
	Avg		72.2	
	Constants for Calc of True Vapor Press			
	A			(See EPA, 1990)
	B			(See EPA, 1990)
	C			(See EPA, 1990)
P	True Vapor Pressure	(psia)		
	@ Max Temp		0.0019	(See Note)
	@ Avg Temp		0.0019	
Wl	Density	(lb/gal)		(See EPA, 1990)
	Tank Height	(feet)	2.5	
D	Tank Diameter	(feet)	6.4	
V	Tank Volume	(gallons)	600	
	Tank Throughput	(gal/yr)	600	
Kc	Product Factor		1	
FRm	Maximum Fill Rate	(gal/hr)	1,800	
Pa	Avg. Atm. Pressure	(psia)	14.7	
T	Avg. Diurnal Delta T	degrees F	21	
H	Avg. Vapor Space Ht.	(feet)	4	(1/2 Tank Hgt. if Unknown)
Fp	Paint Factor		1.4	(See AP–42, Table 4.3–1)
C	Adj. for Small Tanks		0.16	(See AP–42, Fig. 4.3–4)
N	Turnovers	#/yr	1.0	(Annual throughput/V)
Kn	Turnover Factor		1	(See AP–42, Fig. 4.3–7)

Equations:

Lb	Breathing Loss	(lb/yr)	0.0226*Mv*(P/(14.7–P))^0.68*D^1.73*H^0.51* T^0.5*Fp*C*Kc	
Lw	Working Loss	(lb/yr)	2.4*10^ –5*Mv*P*V*N*Kn*Kc	
	Annual Loss	(tons/yr)	(Lb+Lw)/2000	
	Max. Short–term Loss	(lb/hr)	(Lw, lb/yr * FRm)/(N * V)	(TACB, 1992)

		@Max Temp	@Avg Temp
Breathing Loss (Lb)	(lb/yr)	0.50	0.50
Working Loss (Lw)	(lb/yr)	0.02	0.02
Max. Short–term Loss	(lb/hr)	0.05	0.05
Annual Loss	(tons/year)	0.00	0.00

Note: Vendor information indicates a vapor pressure of <0.1 mm Hg.

APPENDIX E

FDER REGULATORY REQUIREMENTS SUMMARY

AIR QUALITY
REGULATORY REQUIREMENTS CHECKLIST
FLORIDA

Rules and Regulations	Applicability	Name	Comments
Title 17		Rules and Regulations of the State of Florida	Heading. No specific regulatory requirements.
• Chapter 17-2		Air Pollution	Heading. No specific regulatory requirements.
• Part I		Definitions	Heading. No specific regulatory requirements.
§17-2.100	Yes	Definitions	This subsection defines the terms used in Chapter 17-2. No specific regulatory requirements.
• Part II		General Provisions	Heading. No specific regulatory requirements.
§17-2.200	Yes	Statement of Intent	Chapter 17-2 is promulgated to eliminate, prevent, and control air pollution, except from outdoor burning and outdoor heating devices which are regulated under Chapter 17-5. It also furthers the Department of Environmental Regulation's (DER's) Prevention of Significant Deterioration (PSD) policy, and establishes ambient air quality standards and emission standards. No specific regulatory requirements.
§17-2.210	Yes	Permits Required	Unless exempt, all sources at the compressor station which emit or can reasonably be expected to emit any air

Rules and Regulations	Applicability	Name	Comments
			pollutant are required to be permitted prior to construction, modification, or initial or continued operation. FGTC must file a construction permit for new sources or those desiring to undergo modification. The permit term will be for a time period sufficient to allow determination of compliance. An operation permit is required of the source after the construction permit expires. The permit specifies the manner, nature, volume and frequency of emission permitted, applicable limiting standard (if any), proper operation and maintenance of pollution control equipment, and a term of 5 years. Requirements for sources which have shut down and desire to reactivate are specified. Exemptions to Chapter 17-2 are listed including emergency electrical generators operating ≤400 hrs/yr.
§17-2.215	No	Emission Estimates	Standards for making emissions estimates for all regulatory purposes including permitting and reporting purposes are established. Since standards have only been established for solid sulfur storage and handling facilities, this section is not applicable to the compressor station.
§17-2.220	Yes	Public Notice and Comment	Public notice must be provided by FGTC for construction (including modifications) permit applications. There are additional public notice requirements for sources subject to New Source Review (NSR), i.e., sources located in non-attainment areas, or Prevention of Significant

Rules and Regulations	Applicability	Name	Comments
			Deterioration (PSD), i.e., sources located in attainment areas. FGTC is required to publish the public notice after it has been prepared by DER. Procedures and specifications for public notice are detailed.
§17-2.240	Yes	Circumvention	Circumvention of pollution control devices and use of improperly operating devices is prohibited. No specific regulatory requirements.
§17-2.250	Yes	Excess Emissions	Excess emissions resulting from startup, shutdown, or malfunction are allowed for ≤2 hours in any 24-hour period provided best operational practices to minimize emissions are used and the activity did not result from poor maintenance or operations. Fossil fuel steam generators are presented as a special case. DER must be notified by FGTC of upset emissions followed by a written report on the malfunction(s), if requested.
§17-2.260	Yes	Air Quality Models	FGTC's estimates of concentrations of ambient air pollutants are to be based on applicable air quality models, data bases, and other DER approved requirements specified in USEPA's "Guidelines On Air Quality Models" (1978). Alternative models may be allowed following public comment and as justified in USEPA's "Workbook for Comparison of Air Quality Models" (1978).

Rules and Regulations	Applicability	Name	Comments
§17-2.270	Yes	Stack Height Policy	For the purpose of estimating ambient air concentrations through modeling, FGTC must use Good Engineering Practice (GEP). A required emission limitation shall not be affected by stack heights which exceed GEP or by other specified dispersion techniques. Actual stack heights are not restricted. GEP specifications and details regarding dispersion techniques are presented. The turbine stack at this facility meets GEP.
§17-2.280	Yes	Severability	If any part of this rule is invalidated, all other parts remain valid. No specific regulatory requirements.
§17-2.290	Yes	Effective Date	The effective date of this rule is 11/1/81. No specific regulatory requirements.
• Part III		Ambient Air Quality	Heading. No specific regulatory requirements.
§17-2.300	Yes	Ambient Air Quality Standards	Standards are established to protect human health and welfare. Violations of ambient air quality standards (AAQS) are not allowed by any source. Standards are established for SO_2 (maximum 3-hour concentration not to be exceeded more than once per year = 1,500 $\mu g/m^3$; 24-hour standard not to be exceeded more than once per year = 260 $\mu g/m^3$); for PM_{10} (24-hour average concentration not to be exceeded more than once per year = 150 $\mu g/m^3$); for CO (maximum 1-hour concentration not to be exceeded more than once per

Rules and Regulations	Applicability	Name	Comments
			year = 40 $\mu g/m^3$); for O_3 (daily maximum 1-hour concentration not to be exceeded an average of more than one day per year = 100 $\mu g/m^3$); for NO_2 (annual arithmetic mean = 100 $\mu g/m^3$); and for lead (maximum quarterly arithmetic mean = 1.5 $\mu g/m^3$). Specific instructions for determining O_3 exceedances and compliance are presented. FGTC is required to maintain AAQS.
§17-2.310	Yes	Maximum Allowable Increases (Prevention of Significant Deterioration Increments	At each point within the baseline area, any increase in pollutant concentration by the compressor station over the baseline concentration shall be limited to the amounts specified in this section. Specifications regarding averaging periods and allowable increases are presented on a pollutant-by-pollutant basis for each area designation (i.e., Class I or II). One exceedance per year above the maximum allowable increase is permitted during one averaging period in the year. The turbine at this station is a minor stationary source. Therefore, the turbine is not subject to preconstruction PSD review.
§17-2.320	Yes	Air Pollution Episodes	Air Pollution Episodes are defined and classified. DER is authorized to declare and terminate episodes and define affected areas. Preplanned abatement strategies prepared by FGTC may be requested by DER. Plan contents are established. Procedures for enforcing non-compliance are presented.

Rules and Regulations	Applicability	Name	Comments
§17-2.330	Yes	Air Alert	Alert level criteria are defined. Actions required of specific sources upon declaration of an alert are given. FGTC is prohibited from any form of open burning.
§17-2.340	Yes	Air Warning	Warning level criteria are defined. Actions required of specific sources upon declaration of a warning are given. FGTC is prohibited from any form of open burning and unnecessary space heating and cooling.
§17-2.350	Yes	Air Emergency	Emergency level criteria are defined. Actions required of specific sources upon declaration of an emergency are given. FGTC is prohibited from any form of open burning, any construction other than in case of an emergency, and unnecessary lighting, heating, or cooling in unoccupied structures. FGTC is required to take any action that will result in the maximum reduction of air pollutants from the compressor station.
• Part IV		Area Designation and Attainment Dates	Heading. No specific regulatory requirements.
§17-2.400	Yes	Procedures for Designation and Redesignation of Areas	All areas of the state are to be designated as non-attainment, non-attainment, attainment, or unclassifiable with respect to each pollutant for which an AAQS has been established. Area determinations determine emission limiting standards, new and modified source review requirements, and other air pollution control measures. All areas not designated as non-attainment are PSD

Rules and Regulations	Applicability	Name	Comments
			areas which require establishment of a baseline date. PSD areas are further classified as Class I, II, or III areas for which maximum allowable increases in SO$_2$ and TSP shall apply after the baseline date. FGTC must comply with these maximum allowable increases. Air Quality Maintenance Areas are former non-attainment areas which have been redesignated to attainment or unclassifiable. These areas remain subject to the emission limiting standards and permit limitations imposed upon them as non-attainment areas. Procedures for redesignation of Class I, II, and III areas and PSD areas are established.
§17-2.410	Yes	Designation of Areas Not Meeting Ambient Air Quality Standards (Non-attainment Areas)	Ozone, TSP, and SO$_2$ non-attainment areas within the state are designated. No$_x$ or PM$_{10}$ non-attainment areas areas have been designated. No specific regulatory requirements.
§17-2.420	Yes	Designation of Areas Meeting Ambient Air Quality Standards (Attainment Areas)	All areas not designated as non-attainment or unclassifiable are designated as attainment areas. This compressor station is located in an attainment area for SO$_2$ and PM, and unclassifiable for all other criteria pollutants. No specific regulatory requirements.
§17-2.430	Yes	Designation of Areas Which Cannot Be Classified Attainment or	Unclassifiable areas in the State are designated. These are all areas not designated as attainment or non-attainment. This compressor station is located in an

Rules and Regulations	Applicability	Name	Comments
		Non-attainment	area unclassifiable for NO_x, CO, and ozone. No specific regulatory requirements.
§17-2.440	Yes	Designation of Class I, Class II, and Class III Areas	Class I areas are specifically designated. All other areas are designated as Class II areas. No Class III areas are designated. No specific regulatory requirements.
§17-2.450	Yes	Designation of Prevention of Significant Deterioration (PSD) Areas	All of the State is a PSD area for TSP and SO_2 (except for designated non-attainment areas) and has a major source baseline date of 1/6/75; a minor source baseline date of 12/27/77; and a trigger date of 8/7/77. All of the state is a PSD area for NO_2 and has a major source baseline date of 2/28/88; a minor source baseline date of 3/28/88; and a trigger date of 2/8/88 No specific regulatory requirements.
§17-2.460	Yes	Designation of Air Quality Maintenance Areas	Air Quality Maintenance Areas within the State are designated. Non-attainment areas which will automatically become air quality maintenance areas upon redesignation by USEPA as attainment are listed. No specific regulatory requirements.
• Part V		New and Modified Source Review Requirements	Heading. No specific regulatory requirements
§17-2.500	No	Prevention of Significant Deterioration	This rule applies to construction of new sources or modification of existing sources in attainment areas. Twenty-eight categories of major facilities (Table 500-1) subject

Rules and Regulations	Applicability	Name	Comments
			to this section are established. The turbine at this station is not one of these listed sources. Specific construction and operation permit requirements are presented. Violations of AAQS are not allowed, nor are emissions increases above baseline concentrations which have been summed with the lesser of the allowable increases or AAQS. The criteria for determining whether or not the compressor station is subject to NSR are presented. Fugitive emissions cannot be used to subject a facility to NSR, and NSR does not apply to sources located in non-attainment areas. Because the turbine at this station is not one of the 28 listed sources and because it does not have the potential to emit >250 TPY of at least one criteria pollutant for which the area is designated as attainment, Compressor Station No. 26 is not subject to PSD preconstruction review. Source exemptions to New Source Review (NSR) are presented. Applicability of NSR to new or modified major and minor sources is established.
§17-2.510	Yes	New Source Review for Non-attainment Areas	This compressor station is located in an attainment area for all criteria pollutants.
§17-2.520	No	Sources Not Subject to Prevention of Significant Deterioration or Non-	This rule applies to sources not subject to NSR but not exempt from general permitting requirements. This compressor station is not subject to the PSD requirements

Rules and Regulations	Applicability	Name	Comments
		attainment Requirements	presented in §17-2.500. Therefore, this section is applicable to the compressor station.
§17-2.530	Yes	Source Reclassification	A source whose operating permit has been revoked is deemed permanently shut down. A source whose permit has lapsed is deemed permanently shut down unless DER is notified within 20 days of the date of lapse and that the source intends to continue operation. The source must meet the additional requirements specified in this rule. This rule does not apply since the permit for this facility has never been revoked or has never lapsed.
§17-2.540	No	Source Specific New Source Review Requirements	This rule applies only to sulfur storage and handling facilities.
• Part VI		Emission Limiting and Performance Standards	Heading. No specific regulatory requirement.
§17-2.600	No	Specific Source Emission Limiting Standards	Emission limiting standards for specified sources are presented. This compressor station is not one of the specified sources.
§17-2.610	Yes	General Particulate Emission Limiting Standard	This rule establishes a PM standard for sources not subject to any other PM or opacity standard. The compressor station is subject to this standard since it is not subject to any other PM limiting standard. A process rate

Rules and Regulations	Applicability	Name	Comments
			standard and a 20% opacity standard is established. The rule mandates that reasonable practices be taken to prevent unconfined PM emissions.
§17-2.620	Yes	General Pollutant Emission Limiting Standard	Vapor emission control is required for storing, pumping handling, processing, loading, unloading, or using in any process or installation VOCs or organic solvents. FGTC's compressor station must not emit objectionable odors.
§17-2.630	No	Best Available Control Technology (BACT)	Because this source is not subject to PSD and because BACT is a requirement under PSD NSR, the turbine is not subject to BACT.
§17-2.640	No	Lowest Achievable Emission Rate (LAER)	LAER is required for construction in non-attainment areas or areas of influence on non-attainment areas. Because this compressor station is located in an attainment area for all criteria pollutants, the turbine is not subject to LAER.
§17-2.650	No	Reasonably Available Control Technology (RACT)	RACT for VOC control is established for sources in non-attainment areas and air quality maintenance areas, and for PM in air quality maintenance areas and areas of influence on them. Because this compressor station is located in an attainment area for all criteria pollutants, this section does not apply.

Rules and Regulations	Applicability	Name	Comments
§17-2.660	Yes	Standards of Performance for New Stationary Sources	Heading. No specific regulatory requirements.
• Subpart D	No	Standards of Performance for Fossil-Fuel Fired Steam Generators for which Construction is Commenced After August 17, 1991	This facility is not a fossil-fuel fired steam generator.
• Subpart Da	No	Standards for Performance for Electric Utility Steam Generating Units for which Construction is Commenced after September 18, 1978	This facility is not an electric utility steam generating unit.
• Subpart Db	No	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	This facility is not a steam generating unit.
• Subpart E	No	Standards of Performance for Incinerators	This facility is not an incinerator.
• Subpart F	No	Standards of Performance for Portland Cement Plants	This facility is not a Portland Cement Plant.
• Subpart G	No	Standards of Performance for Nitric Acid Plants	This facility is not a nitric acid plant.

Rules and Regulations	Applicability	Name	Comments
• Subpart H	No	Standards of Performance for Sulfuric Acid Plants	This facility is not a sulfuric acid plant.
• Subpart I	No	Standards of Performance for Asphalt Concrete Plants	This facility is not a hot mix asphalt facility.
• Subpart J	No	Standards of Performance for Petroleum Refineries	This facility is not a petroleum refinery.
• Subpart K	No	Standards of Performance for Storage Vessels for Petroleum Liquids Constructed after June 11, 1973, and Prior to May 19, 1978	The storage vessels at this facility do not meet the minimum criteria specified (storage capacity $\geq$40,000 gallons).
• Subpart Ka	No	Standards of Performance for Storage Vessels for Petroleum Liquids Constructed after May 18, 1978.	The storage vessels at this facility do not meet the minimum criteria specified (storage capacity $\geq$40,000 gallons).
• Subpart Kb	No	Standards of Performance for Storage Vessels for Petroleum Liquids Constructed after July 23, 1978.	The storage vessels at this facility do not meet the minimum criteria specified (storage capacity $\geq$40 m^3).
• Subpart L	No	Standards of Performance for Secondary Lead Smelters	This facility is not a lead smelter.

Rules and Regulations	Applicability	Name	Comments
• Subpart M	No	Standards of Performance for Secondary Brass and Bronze Ingot Production Plants	This facility does not produce brass or bronze.
• Subpart N	No	Standards of Performance for Iron and Steel Plants	This facility is not an iron or steel plant.
• Subpart Na	No	Standards of Performance for Basic Oxygen Process Steelmaking Facilities for which Construction is Commenced after January 20, 1983	This facility is not a steelmaking facility.
• Subpart O	No	Standards of Performance for Sewage Treatment Plants	This facility is not a sewage treatment plant.
• Subpart P	No	Standards of Performance for Primary Copper Smelters	This facility is not a copper smelter.
• Subpart Q	No	Standards of Performance for Primary Zinc Smelters	This facility is not a zinc smelter.
• Subpart R	No	Standards of Performance for Primary Lead Smelters	This facility is not a lead smelter.
• Subpart S	No	Standards of Performance for Primary Aluminum Reduction Plants	This facility is not an aluminum reduction plant.

Rules and Regulations	Applicability	Name	Comments
• Subpart T	No	Standards of Performance for Phosphate Fertilizer Industry (P.F.I.)s: Wet Process Phosphoric Acid Plants	This facility is not part of the phosphate fertilizer industry.
• Subpart U	No	Standards of Performance for P.F.I.s: Superphosphoric Acid Acid Plants	This facility is not part of the phosphate fertilizer industry.
• Subpart V	No	Standards of Performance for P.F.I.s: Diammonium Phosphate Plants	This facility is not part of the phosphate fertilizer industry.
• Subpart W	No	Standards of Performance for P.F.I.s: Triple Superphosphate Plants	This facility is not part of the phosphate fertilizer industry.
• Subpart X	No	Standards of Performance for P.F.I.s: Granular Triple Superphosphate Storage Facilities	This facility is not part of the phosphate fertilizer industry.
• Subpart Y	No	Standards of Performance for Coal Preparation Plants	This facility is not a coal preparation plant.
• Subpart Z	No	Standards of Performance for Ferroalloy Production Facilities	This facility is not a ferroalloy production facility.

Rules and Regulations	Applicability	Name	Comments
• Subpart AA	No	Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed after October 21, 1974, and on or before August 17, 1983	This facility is not a steel plant.
• Subpart AAa	No	Standards of Performance for Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed after August 7, 1983	This facility is not a furnace.
• Subpart BB	No	Standards of Performance for Kraft Pulp Mills	This facility is not a Kraft pulp mill.
• Subpart CC	No	Standards of Performance for Glass Manufacturing Plants	This facility is not a glass manufacturing plant.
• Subpart DD	No	Standards of Performance for Grain Elevators	This facility is not a grain elevator.
• Subpart EE	No	Standards of Performance for Surface Coating: Metal Furniture	This facility is not involved in surface coating operations.
• Subpart GG	Yes	Standards of Performance for Stationary Gas Turbines	The stationary gas turbine to be installed at this facility is subject to this standard because it will exceed 10.7 gigajoules/hr (10MMBtu/hr) of heat input and is to be installed after 10/3/77.

Rules and Regulations	Applicability	Name	Comments
• Subpart HH	No	Standards of Performance for Lime Manufacturing Plants	This facility is not a lime manufacturing plant.
• Subpart KK	No	Standards of Performance for Lead-Acid Battery Manufacture Plants	This facility is not a lead-acid battery manufacturing plant.
• Subpart LL	No	Standards of Performance for Metallic-Mineral Processing Plants	This facility is not a metallic-mineral processing plant.
• Subpart MM	No	Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations	This facility is not a surface coating facility.
• Subpart NN	No	Standards of Performance for Phosphate Rock Plants	This facility is not a phosphate rock plant.
• Subpart PP	No	Standards of Performance for Ammonium Sulfate Manufacturing	This facility is not involved in the manufacture of ammonium sulfate.
• Subpart QQ	No	Standards of Performance for Graphic Arts Industry: Publication Rotogravure Printing	This facility is not part of the graphic arts industry.

Rules and Regulations	Applicability	Name	Comments
• Subpart RR	No	Standards of Performance for Pressure Sensitive Tape and Label Surface Coating Operations	This facility is not involved in coating operations.
• Subpart SS	No	Standards of Performance for Industrial Surface Coating: Large Appliances	This facility is not involved in coating operations.
• Subpart TT	No	Standards of Performance for Metal Coil Surface Coating	This facility is not involved in coating operations.
• Subpart UU	No	Standards of Performance for Asphalt Processing and Asphalt Roofing Manufacture	This facility is not involved in asphalt processing or asphalt roofing manufacture.
• Subpart VV	No	Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	This facility is not a SOCMI facility.
• Subpart WW	No	Standards of Performance for the Beverage Can Surface Coating Industry	This facility is not involved in coating operations.
• Subpart XX	No	Standards of Performance for Bulk Gasoline Terminals	This facility is not a bulk gasoline terminal.

Rules and Regulations	Applicability	Name	Comments
• Subpart AAA	No	Standards of Performance for New Residential Wood Heaters	This facility is not a residential wood heater.
• Subpart BBB		Standards of Performance for the Rubber Tire Manufacturing Industry	This facility is not involved in the manufacture of rubber tires.
• Subpart FFF	No	Standards of Performance for Flexible Vinyl and Urethane Coating and Printing	This facility is not involved in coating or printing.
• Subpart GGG	No	Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries	This facility is not a petroleum refinery.
• Subpart HHH	No	Standards of Performance for Synthetic Fiber Production Facilities	This facility is not a synthetic fiber production facility.
• Subpart III	No	Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes	This facility is not a SOCMI facility.
• Subpart JJJ	No	Standards of Performance for Petroleum Dry Cleaners	This facility is not a petroleum dry cleaner.

Rules and Regulations	Applicability	Name	Comments
• Subpart KKK	No	Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants	This facility is not a natural gas processing plant.
• Subpart LLL	No	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	This facility is not a natural gas processing plant.
• Subpart NNN	No	Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemical Manufacturing Industry (SOCMI) Distillation Operations	This facility is not a SOCMI facility.
• Subpart OOO	No	Standards of Performance for Nonmetallic Mineral Processing Plants	This facility is not a nonmetallic mineral processing plant.
• Subpart PPP	No	Standards of Performance for Wool Fiberglass Insulation Manufacturing Plants	This facility is not a wool fiberglass manufacturing plant.
• Subpart QQQ	No	Standards of Performance for Petroleum Wastewater Systems	This facility is not a petroleum wastewater system.

Rules and Regulations	Applicability	Name	Comments
• Subpart SSS	No	Standards of Performance for Magnetic Tape Manufacturing Industry	This facility is not involved in the manufacture of magnetic tape.
• Subpart TTT	No	Standards of Performance for Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	This facility is not a surface coating facility.
• Subpart VVV	No	Standards of Performance for Polymeric Coating of Supporting Substrates Facilities	This facility is not involved in coating operations.
§17-2.670	No	National Emission Standards for Hazardous Air Pollutants	The federal NESHAPS are incorporated here by reference.
• Subpart B	No	Radon-222 Emission from Underground Uranium Mines	This facility is not an underground uranium mine.
• Subpart C	No	Beryllium	This facility is not a source of beryllium.
• Subpart D	No	Beryllium Rocket Motor Firing	This facility is not engaged in rocket motor firing.
• Subpart E	No	Mercury	There are no mercury emissions from this facility.
• Subpart F	No	Vinyl Chloride	There are no vinyl chloride emissions from this facility.
• Subpart G	No		Reserved. No specific regulatory requirements.

Rules and Regulations	Applicability	Name	Comments
• Subpart H	No		Reserved. No specific regulatory requirements.
• Subpart I	No		Reserved. No specific regulatory requirements.
• Subpart J	No	Benzene Equipment Leaks	There are no benzene emissions from this facility.
• Subpart K	No		Reserved. No specific regulatory requirements.
• Subpart L	No	Benzene Emissions from Coke By-Product Recovery Plants	This facility is not a coke by-product recovery plant.
• Subpart M	No	Asbestos	There are no asbestos emissions at this facility.
• Subpart N	No	Standard for Inorganic Arsenic Emissions from Glass Manufacturing Plants	This facility is not a glass manufacturing plant.
• Subpart O	No	Standard for Inorganic Arsenic Emissions from Primary Copper Smelters	This facility is not a primary copper smelter.
• Subpart P	No	Standard for Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities	This facility is not an arsenic production facility.
• Subpart Q	No		Reserved. No specific regulatory requirements.

Rules and Regulations	Applicability	Name	Comments
• Subpart R	No		Reserved. No specific regulatory requirements.
• Subpart S	No		Reserved. No specific regulatory requirements.
• Subpart T	No		Reserved. No specific regulatory requirements.
• Subpart U	No		Reserved. No specific regulatory requirements.
• Subpart V	No	Equipment Leaks (Fugitive Emission Sources)	This facility will have no benzene or vinyl chloride emissions.
• Subpart W	No	Radon-222 Emissions from Licensed Uranium Mill Tailings	This facility does not handle uranium mill tailings.
• Subpart X	No		Reserved. No specific regulatory requirements.
• Subpart Y	No	Benzene Emissions from Benzene Storage Vessels	This facility does not have benzene storage vessels.
• Subpart Z	No		Reserved. No specific regulatory requirements.
• Subpart AA	No		Reserved. No specific regulatory requirements.
• Subpart BB	No	Benzene Emissions from Benzene Transfer Operations	There are no benzene transfer operations at this facility.
• Subpart CC	No		Reserved. No specific regulatory requirements.

Rules and Regulations	Applicability	Name	Comments
• Subpart DD	No		Reserved. No specific regulatory requirements.
• Subpart EE	No		Reserved. No specific regulatory requirements.
• Part VII	No	Source Sampling and Monitoring	Heading. No specific regulatory requirements.
§17-2.700	Yes	Stationary Point Source Emissions Test Procedures	The methods and procedures which FGTC must use to perform compliance test on stack emission are presented.
§17-2.710	No	Continuous Monitoring Requirements	These requirements apply only to certain specified sources. This facility is not one of those specified.
§17-2.753	No	DER Ambient Test Methods	These requirements apply only to certain specified sources. This facility is not one of those specified.
• Part VIII	Yes	Local Air Pollution Control Programs	This part establishes local air pollution control programs. in specified counties. This facility is not located in one of the counties with approved programs.
• Part IX	No	Compliance Schedules	This part applies only to certain specified sources. This facility is not one of the sources specified.
• Chapter 17-4		Permits	Heading. No specific regulatory requirements.
§17-4.001	No	Scope of Part I	This section establishes that procedures for obtaining an FDER permit will be presented in Part I. No specific regulatory requirements.

Rules and Regulations	Applicability	Name	Comments
§17-4.020	Yes	Definitions	Definitions of terms used in Part I to which FGTC is subject are presented.
§17-4.021	No	Transferability of Definitions	Terms defined in other Chapters retain their meaning here, unless otherwise defined. No specific regulatory requirements.
§17-4.022	No	Determination of the Landward Extent of Surface Waters of the State	Transferred to §17-3.022. No specific regulatory requirements.
§17-4.030	Yes	General Prohibition	All FGTC stationary sources must have a valid permit unless exempted, and must be constructed, maintained, and operated consistent with the terms of the permit.
§17-4.040	Yes	Exemptions	DER may exempt structural changes which will not change quality, nature, or quantity of emissions or will not cause pollution. DER may exempt sources which do not contribute significantly to pollution problems within the state. FGTC may request an exemption for sources which meet the previously stated conditions.
§17-4.050	Yes	Procedure to Obtain Permit: Application	FGTC is to complete an application in quadruplicate on DER forms. The application must be certified by a Florida Registered Professional Engineer and must be accompanied by the appropriate processing fee. FGTC must submit a certification of construction and permit fee

Rules and Regulations	Applicability	Name	Comments
			upon completion of construction in order to be granted an operation permit.
§17-4.055	Yes	Permit Processing	This section establishes the schedule which DER must follow in processing the permit application. DER may request additional information from FGTC. FGTC may request a hearing if it believes that the requested information is not legally authorized.
§17-4.060	Yes	Consultation	FGTC or their representatives are encouraged to consult with DER prior to submitting the permit application. No specific regulatory requirements.
§17-4.070	Yes	Standards for Issuing or Denying Permits; Issuance; Denial	The construction permit will be issued "for a period of time as necessary." The operation permit will have a 5 year term. FGTC's compliance history will be considered in issuing/denying the application. DER will stipulate permit conditions. No specific regulatory requirements.
§17-4.080	Yes	Modification of Permit Conditions	DER may, after issuing the permit, modify or establish new permit conditions. FGTC may request a permit modification permit extension.
§17-4.090	Yes	Renewals	FGTC must apply for a permit renewal prior to 60 days before the expiration of the permit.
§17-4.100	Yes	Suspension and Revocation	FGTC's permit may be suspended or revoked for actions specified within the section.

Rules and Regulations	Applicability	Name	Comments
§17-4.110	Yes	Financial Responsibility	DER may request FGTC to submit proof of financial responsibility, and may require a bond to guarantee compliance.
§17-4.120	Yes	Transfer of Permits	FGTC must submit an "Application for Transfer of Permit" within 30 days of selling/legally transferring a permitted facility.
§17-4.140	No	Reports	Repealed. No specific regulatory requirements.
§17-4.150	Yes	Review	After having received notice of a proposed or final DER action, FGTC waives its right to an administrative hearing if FGTC fails to respond to the notice with 14 days of receipt.
§17-4.160	Yes	Permit Conditions	FGTC is required to properly operate and maintain the facility in order to maintain compliance. DER may access FGTC's records, inspect the facility, and collect samples. All FGTC data may be used in enforcement proceedings. FGTC must keep a copy of the permit at the facility. All monitoring information, reports, and data used to complete applications must be retained at the site or other location specified in the permit for 3 years. FGTC is required to keep specific information regarding monitoring data.
• Part II	No	Specific Permits: Requirements	Heading. No specific regulatory requirements.

Rules and Regulations	Applicability	Name	Comments
§17-4.200	No	Scope of Part II	This section establishes that additional requirements for certain permits are established in the following sections. No specific regulatory requirements.
§17-4.210	Yes	Construction Permits	FGTC is required to apply on DER forms for a permit to construct.
§17-4.220	Yes	Operation Permit for New Sources	FGTC is required to submit the appropriate fee and certification that construction was completed.
§17-4.230	No	Operation Permits for Pollution Sources	Repealed. No specific regulation requirements.
• Part III	No	Procedures for General Permits	This facility does not meet the requirements for being issued a general permit.
• Chapter 17-256	No	Open Burning and Frost Protection Fires	This facility will not engaged in open burning or use of frost protection fires.
• Chapter 17-8	Yes	Ad Valorem Tax Assessment Rules	A tax assessor may require FGTC to submit a detailed list of pollution control devices at the facility, and their cost and function, for the purpose of assessing ad valorem taxes.
• Chapter 17-242	No	Mobile Source - Motor Vehicle Emission Standards and Test Procedures	This facility is not involved with compliance and testing of mobile sources/motor vehicles.

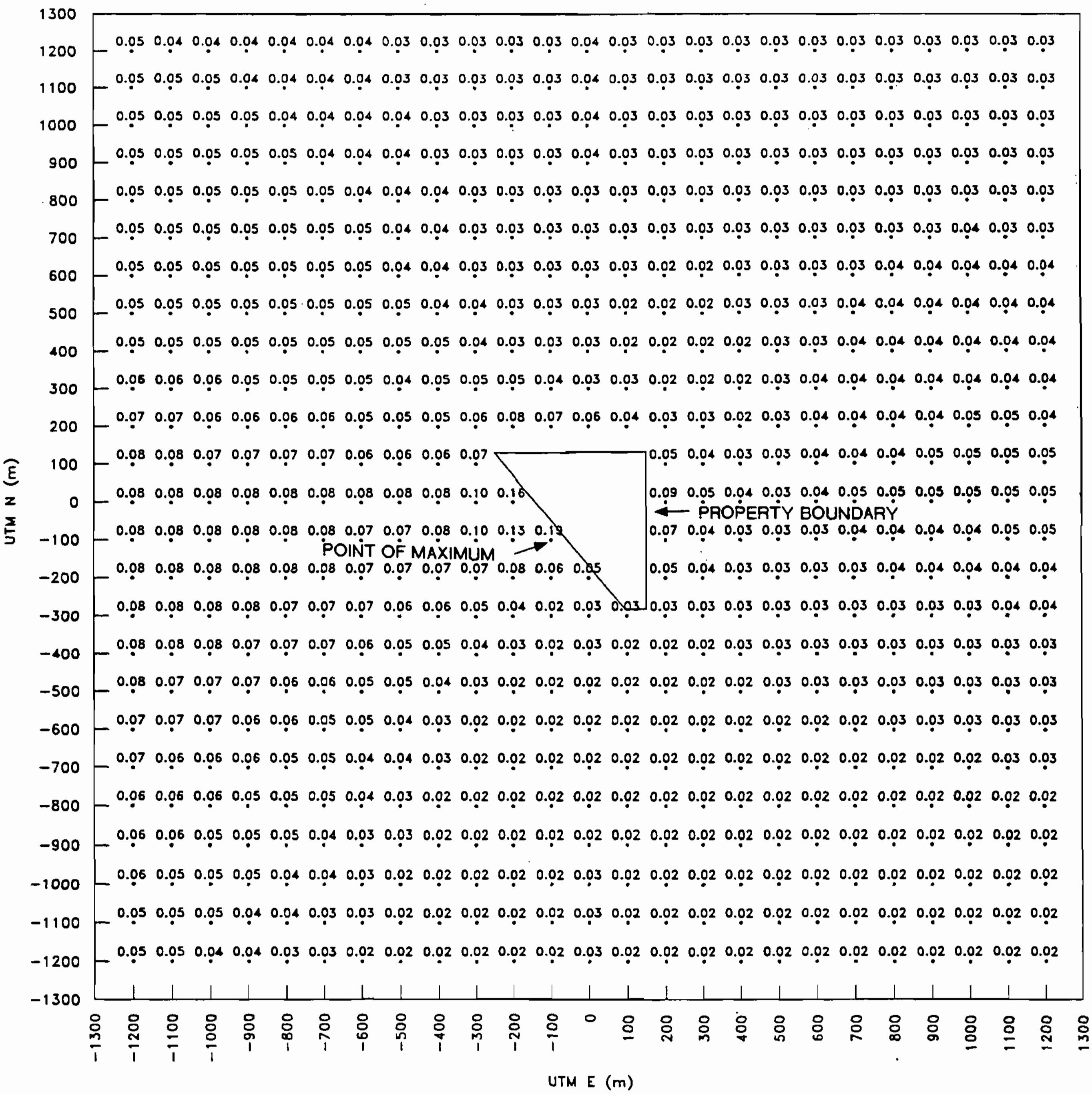
Rules and Regulations	Applicability	Name	Comments
• Chapter 17-243	No	Tampering With Motor Vehicle Air Pollution Control Equipment	This facility is not involved with checking motor vehicle pollution control devices for tampering.

APPENDIX F

AREA CONCENTRATION MAPS FROM ISC MODELING
GEP STRUCTURE DOWNWASH OUTPUT TABLE
ISC MODEL OUTPUT
FLOPPY DISK WITH MODELING AND GEP INPUT FILES

MAXIMUM ANNUAL NO_x CONCENTRATION ($\mu g/m^3$)
100 METER GRID SPACING

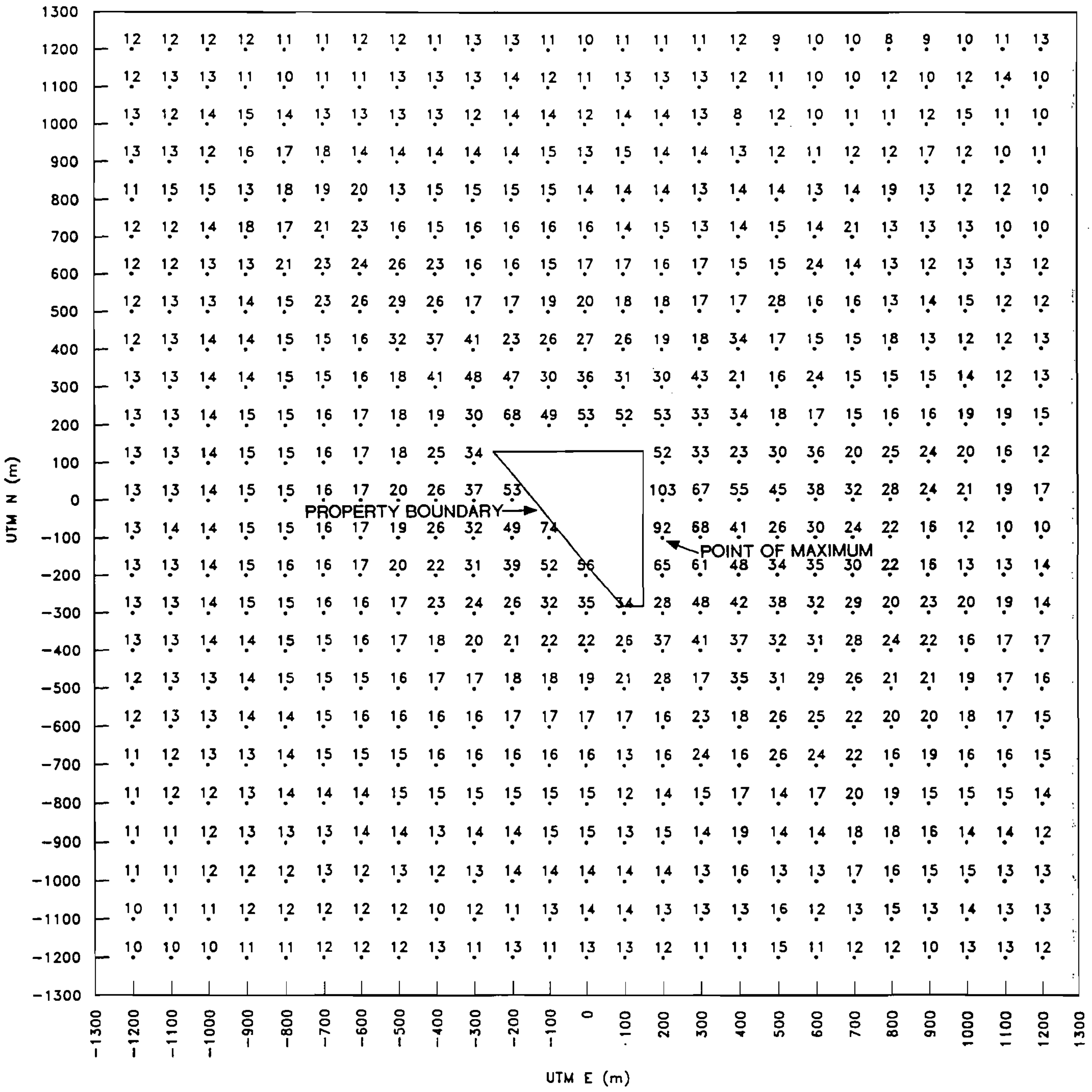
FGTC Station 26 NOx ANNUAL max 100 m grid (ug/m3) 1982



	-1200	-1100	-1000	-900	-800	-700	-600	-500	-400	-300	-200	-100	0	100	200	300	400	500	600	700	800	900	1000	1100	1200
1200	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
1100	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
1000	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
900	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
800	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
700	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03
600	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04
500	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
400	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04
300	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.04	0.03	0.03	0.02	0.02	0.02	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
200	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.06	0.08	0.07	0.06	0.04	0.03	0.03	0.02	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.04
100	0.08	0.08	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.07					0.05	0.04	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05
0	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.10	0.16				0.09	0.05	0.04	0.03	0.04	0.05	0.05	0.05	0.05	0.05	0.05
-100	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.08	0.10	0.13	0.19			0.07	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05
-200	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.08	0.06	0.05		0.05	0.04	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04
-300	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.05	0.04	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04
-400	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.05	0.05	0.04	0.03	0.02	0.03	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
-500	0.08	0.07	0.07	0.07	0.06	0.06	0.05	0.05	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
-600	0.07	0.07	0.07	0.06	0.06	0.05	0.05	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03
-700	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03
-800	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
-900	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
-1000	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
-1100	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
-1200	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02

MAXIMUM 1-HOUR CO CONCENTRATION ($\mu g/m^3$)
100 METER GRID SPACING

FGTC Station 26 CO 1 HOUR max 100 m grid (ug/m3) 1986



	-1200	-1100	-1000	-900	-800	-700	-600	-500	-400	-300	-200	-100	0	100	200	300	400	500	600	700	800	900	1000	1100	1200
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500	12	13	13	14	15	23	26	29	26	17	17	19	20	18	18	17	17	28	16	16	13	14	15	12	12
400	12	13	14	14	15	15	16	32	37	41	23	26	27	26	19	18	34	17	15	15	18	13	12	12	13
300	13	13	14	14	15	15	16	18	41	48	47	30	36	31	30	43	21	16	24	15	15	15	14	12	13
200	13	13	14	15	15	16	17	18	19	30	68	49	53	52	53	33	34	18	17	15	16	16	19	19	15
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MAXIMUM 8-HOUR CO CONCENTRATION ($\mu g/m^3$)
100 METER GRID SPACING

FGTC Station 26 CO 8 HOUR max 100 m grid (ug/m3) 1985