STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

DER File No. **AC** 29-228821
Hillsborough County

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

_____/

Enclosed is Permit Number **AC** 29-228821 to construct a 1,202 bhp natural gas fired turbine at the Florida Gas Transmission Company's facility located 4 miles NE of the town of Plant City on SR 582, Hillsborough 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
J. Campbell, EPCHC
B. Andrews, P.E., ENSR

Final Determination

Florida Gas Transmission Company
Hillsborough County
Plant City, Florida
Station No. 30

Natural Gas Compressor Engine
Permit No. AC 29-228821

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 1202 bhp natural gas fired turbine at the Florida Gas Transmission Company facility located 4 miles NE of the town of Plant City on SR 582 in Hillsborough County, Florida, was distributed on July 23, 1993. The Notice of Intent was published in the Tampa Tribune on August 6, 1993. Copies of the evaluation were available for inspection at the Hillsborough County Environmental Protection Commission and the Department's offices in Tampa and Tallahassee.

Florida Gas Transmission Company (FGTC's) application for a permit to construct a natural gas fired turbine in Hillsborough 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 0.013 MMCF/hr.
Maximum heat input shall not exceed 13.13 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 **0.0156 MMCF/hr (based on a fuel heating value of 1040 BTU/CF).**
Maximum heat input shall not exceed **15.76 MMBTU/hr.**

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 29-228821
Expiration Date: June 30, 1995
County: Hillsborough
Latitude/Longitude: 28°04'55"N
82°06'01"W
Project: Natural Gas Turbine
No. 3003) Station No. 30

This 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 and associated support equipment to be located on Griffin Road, 2 miles east of State Highway 36, Plant City, Hillsborough County, Florida. The UTM coordinates are Zone 17, 392.895 km East and 3106.61 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. DEP Form 17-1.202(1) Application to Operate/Construct Air Pollution Sources.
2. Florida Gas Transmission's letter dated April 27, 1993.

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.

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

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

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

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**	3.95	17.3	1.49 g/bhp-hr
Carbon Monoxide	5.88	25.75	2.22 g/bhp-hr
Volatile Organic Compounds (non-methane)	0.25	1.10	0.95 g/bhp-hr
Particulate Matter (TSP)	0.077	0.34	5 lbs/MMscf
Particulate Matter (PM_{10})	0.077	0.34	5 lbs/MMscf
Sulfur Dioxide	0.44	1.94	10 gr S/100scf

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

2. Visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year).

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

SPECIFIC CONDITIONS:

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

- Maximum natural gas consumption shall not exceed 0.0156 MMCF/hr (based on a fuel heating value of 1040 BTU/CF)
- Maximum heat input shall not exceed 15.76 MMBtu/hr

6. Any change in the method of operation, equipment or operating hours shall be submitted to the DEP's Bureau of Air Regulation, Southwest District, and the Environmental Protection Commission in Hillsborough County (EPCHC) 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 Rule 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 Emission from Stationary Sources
- Method 20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Gas Turbines
- Method 18	Measurements of Gaseous Organic Compound Emissions by Gas Chromatography
- Method 25A	Determination of Total Gaseous Nonmethane Organic Emissions 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.

SPECIFIC CONDITIONS:

10. Initial compliance with the total volatile organic compounds will be determined by EPA Method 25A or Method 18. Thereafter, except as provided in Rule 17-297.340(2), compliance with the total 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 Air Section of the Environmental Protection Commission in Hillsborough County (EPCHC) and the Southwest District office shall be notified at least 30 days in writing in advance of the compliance test(s). The source shall operate between 90% and 100% of permitted capacity during the compliance test. Compliance test results shall be submitted to the EPCHC and the Southwest District offices no later than 45 days after completion.

13. Sulfur and nitrogen content and the lower heating value of the fuel being fired in the combustion turbines 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 Environmental Protection Commission of Hillsborough County (EPCHC),

SPECIFIC CONDITIONS:

and the Southwest District offices. 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 demonstrates 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.

15. When the Department, after investigation, has good reason (such as odor complaints, increased visible emissions, excess emissions, etc.), to conclude that any applicable emission standard contained in this permit is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of air pollutant emissions from the facility and to provide a report of said tests to the Department (F.A.C. Rule 17-297.340(2)).

Rule Requirements

16. 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. 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.

18. 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. 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 unreasonably 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. 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.

SPECIFIC CONDITIONS:

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, lower heating value of the fuel being fired, fuel usage, turbine inlet and outlet temperature, RPM, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office and the EPCHC 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).

24. An application for an operation permit must be submitted to the EPCHC and the Southwest District offices 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 29-228821
Natural Gas Compressor Station No. 30, Hillsborough 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 1,202 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

→ P5 1/2

Check Sheet

Company Name: PI Gas Transmission
Permit Number: AC 29-228821
PSD Number:
County:
Permit Engineer:
Others involved:

Application:
- [x] Initial Application
- [x] Incompleteness Letters
- [x] Responses
- [ ] Final Application (if applicable)
- [ ] Waiver of Department Action
- [ ] Department Response
- [ ] Other

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

Final Determination:
- [x] Final Determination
- [x] Signed Permit
- [ ] BACT Determination
- [ ] Other

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

In the folder labeled as follows there are documents, listed below, which were not reproduced in this electronic file. That folder can be found in the supplementary documents file drawer. Folders in that drawer are arranged alphabetically, then by permit number.

Folder Name: Florida Gas Transmission Company

Permit(s) Numbered:

AC 27 -228821

Documents: Period during which document was received	Detailed Description
Application	1. 22" × ~~25"~~ 32" B&W Drawing: COMPRESSOR STATION NO. 30 PLOT PLAN (Drawing Number: SO-1) 2. 3.5" Diskette

R. File

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 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

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, 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

Florida Gas Transmission Company

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

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

R. File

Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

May 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

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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

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,
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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, 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

Florida Gas Transmission Company

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

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

P 230 524 373

Receipt for Certified Mail

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

UNITED STATES POSTAL SERVICE

Sent to: CARL Schulz	
Street and No. FIA GAS PC	
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 7-23-93	
AC 29-228821	

PS Form 3800, June 1991

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.

following services (for an extra fee):

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

Consult postmaster for fee.

3. Article Addressed to:
Carl D Schulz, VP
FIA GAS Transmission Co
PO BOX 1188
Houston, TX
77251-1188

4a. Article Number P 230 524 373

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

7. Date of Delivery JUL 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

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

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 23, 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 are the Technical Evaluation and Preliminary Determination and proposed permit to install one natural gas fired turbine in Plant City, Hillsborough 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,

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

CHF/TH/kt

Attachments

cc: B. Thomas, SW District
J. Campbell, EPCHC
B. Andrews, P.E., ENSR

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CERTIFIED MAIL

In the Matter of an
Application for Permit by:

DEP File No. AC 29-228821
Hillsborough 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 March 26, 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 existing facility in Plant City, Hillsborough County, Florida.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes and Florida Administrative Code (F.A.C.) Chapters 17-269 through 297 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

for _____
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 7-23-93 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.

_____ 7-23-93
Clerk Date

Copies furnished to:

B. Thomas, SW District
J. Campbell, EPCHC
B. Andrews, P.E., ENSR

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 on Griffin Road, 2 miles east of State Highway 39, in Plant City, Hillsborough County, Florida. 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

Hillsborough County Environmental
Protection Commission
1410 North 21st Street
Tampa, Florida 33605

Department of Environmental Protection
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

Hillsborough County
Plant City, Florida
Station No. 30

Natural Gas Compressor Engine
Permit No. AC 29-228821

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

July 22, 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: March 26, 1993

Additional Information Received: April 28, 1993

Application Completeness Date: April 28, 1993

II. FACILITY INFORMATION

II.1 FACILITY LOCATION

Florida Gas Transmission Company's (FGTC) facility is located 4 miles northeast of the town of Plant City on State Route 582 in Hillsborough County, Florida. The UTM coordinates are 391.89 E and 3106.61 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 FGTC site in Hillsborough County, will be classified as a minor emitting facility for nitrogen oxides (NOx) and carbon monoxide (CO). The proposed project will increase NOx by 17.30 tons per year and CO by 25.75 tons per year. The total permitted emissions for this facility shall not exceed 46.16 tons NOx per year and 43.03 tons CO per year.

III. PROJECT DESCRIPTION

The FGTC proposed to install one natural gas fired turbine. The turbine engine will be a Solar Saturn T-1200 compressor unit ISO rated at 1,202 bhp at 22,500 revolutions per minute (rpm). 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 for delivery throughout Florida. The proposed engine will incorporate dry low NOx combustion technology. The engine to be installed at compressor station No. 30 is currently operating under a Florida Department of Environmental Regulation permit (AO 53-20944-Engine No. 3201) at Compressor Station No. 32, in Polk County. As part of this project, the Polk County compressor unit and associated auxiliary equipment will be deactivated at Compressor Station No 32, transported to Compressor Station No. 30 and reactivated. A flow diagram of a typical compressor unit is presented in Figure 2-1.

III.1 Background Information

Hillsborough County existing compressor station consists of two (2) Solar Saturn T-1200 turbine engines (note: both units are remanufactured T-1001 turbines, providing T-1200 performance). This compressor station began operations in 1970 when engine 3001 was installed. A second identical unit (3002) was added to the station in 1985. These existing turbines are not modified as part of this Phase III expansion project.

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 four 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 the 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 (Hillsborough County) designated nonattainment for ozone and attainment for all of the other criteria pollutant in accordance with Rule 17-275.500 and 17-275.400, respectively.

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 the 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. 17-296, Stationary Sources-Emissions Standards; F.A.C. Rule

17-296.310 General Particulate Emission Limiting Standards; F.A.C. Rule 17-296.320, General Pollutant Limiting Standards. 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 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 will produce emissions of nitrogen oxide (NOx), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM), and sulfur dioxide (SO2) from the burning of natural gas. Potential new VOC emissions from the station include fugitive emissions from new valves and flanges that will be in gas service. Table I summarizes the proposed source emissions and Table II comprises the proposed and total emissions from this station.

Table I
Summary of Emissions
Source ID No. 3003

Pollutant	Max. Potential Emissions From Proposed Turbine (lbs/hr)	(TPY)	Significant Emission Rate (TPY)
Nitrogen Oxides	3.95	17.30	40
Carbon Monoxide	5.88	25.75	100
Volatile Organic Compounds (non-methane)	0.25	1.10	40
Particulate Matter (TSP)			
Particulate Matter (PM_{10})	0.06	0.28	25
Sulfur Dioxide	0.37	1.62	40
Fugitive (VOC Emissions)	0.154	0.68	

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.

TABLE II

Annual (TPY) Emission Levels
FGTC's Compressor Station No. 30

SOURCE ID	DESCRIPTION	NO_x	CO	VOC (NM/NE, HC)	SO_2	PM
EXISTING FACILITY						
	COMPRESSOR ENGINES:					
3001	1202 bhp Turbine Engine	14.43	8.64	0.22	1.58	0.28
3002	1202 bhp Turbine Engine	14.43	8.64	0.22	1.58	0.28
	OTHER SOURCES: *	—	—	0.17	—	—
EXISTING TOTAL		28.86	17.28	0.61	3.16	0.56
PROJECT RELATED						
	COMPRESSOR ENGINE:					
	1202 bhp Turbine Engine	17.30	25.75	1.10	1.62	0.28
	TANKS:					
Tank 1	Used Lube Oil Tank	—	—	0.00**	—	—
Tank 2	Used Lube Oil Tank	—	—	0.00**	—	—
	FUGITIVE	—	—	0.13	—	—
PROJECT TOTAL		17.30	25.75	1.23	1.62	0.28
STATION TOTAL ***		46.16	43.03	1.84	4.78	0.84

* - estimated fugitive emissions from equipment leaks only.

** - actual emissions are insignificant at 0.00002 TPY for Tank 1 and 0.00002 TPY for Tank 2.

*** - STATION TOTAL = EXISTING + PROJECT

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.

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 29-228821
Expiration Date: June 30, 1995
County: Hillsborough
Latitude/Longitude: 28°04'55"N
82°06'01"W
Project: Natural Gas Turbine No. 3003) Station No. 30

This 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 and associated support equipment to be located on Griffin Road, 2 miles east of State Highway 36, Plant City, Hillsborough County, Florida. The UTM coordinates are Zone 17, 392.895 km East and 3106.61 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. DEP Form 17-1.202(1) Application to Operate/Construct Air Pollution Sources.
2. Florida Gas Transmission's letter dated April 27, 1993.

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.

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

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

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

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*	3.95	17.3	1.49 g/bhp-hr
Carbon Monoxide	5.88	25.75	2.22 g/bhp-hr
Volatile Organic Compounds (non-methane)	0.25	1.10	0.95 g/bhp-hr
Particulate Matter (TSP)	0.064	0.28	5 lbs/MMscf
Particulate Matter (PM_{10})	0.064	0.28	5 lbs/MMscf
Sulfur Dioxide	0.37	1.62	10 gr/100scf

NOx emission standard shall not exceed 42 ppmv at 15% oxygen on a dry basis.

2. Visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year).

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

SPECIFIC CONDITION:

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

- Maximum natural gas consumption shall not exceed 0.013 MMCF/hr
- Maximum heat input shall not exceed 13.13 MMBtu/hr

6. Any change in the method of operation, equipment or operating hours shall be submitted to the DER's Bureau of Air Regulation, Southwest District, and the Environmental Protection Commission in Hillsborough County (EPCHC) 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 desribed in 40 CFR 60, Appendix A (July 1992 version) and adopted by reference in Rule 17-297, F.A.C.

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

9. Other DER 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 total volatile organic compounds will be determined by EPA Method 25A or Method 18. Thereafter, except as provided in Rule 17-297.340(2), compliance with the total VOC emission limits will be assumed, provided the CO allowable emission rate is achieved.

SPECIFIC CONDITIONS:

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:

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

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 Air Section of the Environmental Protection Commission in Hillsborough County (EPCHC) and the Southwest District office shall be notified at least 15 days in writing in advance of the compliance test(s). The source shall operate between 95% and 100% of permitted capacity during the compliance test. Compliance test results shall be submitted to the EPCHC and the Southwest District offices no later than 45 days after completion.

13. Sulfur and nitrogen content and lower heating value of the fuel being fired in the combustion turbines 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 Environmental Protection Commission of Hillsborough County (EPCHC), and the Southwest District offices. 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 demonstrates that the provisions of the schedule will be adequate to assure continuous compliance.

SPECIFIC CONDITIONS:

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.

15. When the Department, after investigation, has good reason (such as odor complaints, increased visible emissions, excess emissions, etc.), to conclude that any applicable emission standard contained in this permit is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of air pollutant emissions from the facility and to provide a report of said tests to the Department (F.A.C. Rule 17-297.340(2)).

Rule Requirements

16. 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. 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.

18. 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. 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 unreasonably 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. 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.

SPECIFIC CONDITIONS:

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 content and the lower heating value of the fuel being fired, fuel usage, turbine inlet and outlet temperature, RPM, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office and the EPCHC 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).

24. An application for an operation permit must be submitted to the EPCHC and the Southwest District offices 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

Florida Gas Transmission Company

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

March 31, 1995

Mr. Rick Kirby
Environmental Protection Commission of Hillsborough County
1410 N. 21st St.
Tampa, Florida 33605

Copy

RE: Air Permit No. AC 29-228821
FGT Compressor Station No. 30, Hillsborough County
Operating Permit Application

Dear Mr. Kirby:

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.

Emissions testing was performed on February 23, 1995, and the test report has been attached to this application as Attachment 6. Prior to testing, the sampling ports were found to be in an unacceptable location. New ports were installed in an acceptable position and used for the testing. A new sampling platform is being installed.

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

Ms. Margaret Cangro, Air Quality Division, Florida Department of Environmental Protection, Southwest District, 3804 Coconut Palm Drive, Tampa, Florida 33619 - w/o attachments

William Rome - FGT - w/o attachments

Allan Weatherford - FGT

FGT Plant City Compressor Station No. 30 File

FILE: 30opapp.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. 30
Florida Gas Transmission Company
4 miles northeast of the town of Plant City on State Route 582
Hillsborough 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.*

W. E. Rome
Signature

3/31/95
Date

Scope of Application

Emissions Unit ID	Description of Emissions Unit
03	Compressor Engine No. 3003
Unknown	2-55 Gallon New Lube Oil Storage Drums
Unknown	2-250 Gallon Used Lube Oil Storage Tanks
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 29-228821

[ ] 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 : 3/16/94

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. 30

3. Facility Identification Number : 40HIL290438

4. Facility Location Information :

   Compressor Station No. 30
   Florida Gas Transmission Company
   4 miles northeast of the town of Plant City on State Route 582
   Hillsborough County, Florida

   Facility Street Address : 2654 Knights-Griffin Road
   City : Plant City
   County : Hillsborough Zip Code : 33565-____

5. Facility UTM Coordinates :

   Zone : 17 East (km) : 391.90 North (km) : 3106.61

6. Facility Latitude/Longitude :

   Latitude (DD/MM/SS) : 28 4 55 Longitude (DD/MM/SS) : 82 6 1

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

11. Facility Comment :

Facility Contact

1. Name and Title of Facility Contact :

Name : Curtis Gavin
Title :

2. Facility Contact Mailing Address :

Organization/Firm : Florida Gas Transmission Company
Street Address : 1544 North Combee Road
City : Lakeland
State : FL Zip Code : 33801-2723

3. Facility Contact Telephone Numbers :

Telephone : 8177546211 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? Construction Permit Number/Issue Date : AC 29-228821 09/23/93	N
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. 3003	
2. ARMS Identification Number : 03	
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 : Saturn T-1200	
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 1

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	16 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 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 :	Attachment 6
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

[ ] 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 2

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section : 2-55 Gallon New Lube Oil Storage Drums	
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 : New lube oil will be delivered to and stored at the site in 55 gallon drums. As required, the oil will be transferred to the turbine to insure that proper fluid level is maintained. No emissions will occur from the storage of this oil, as the drums will be sealed. Some fugitive losses will occur when the oil is transferred to the turbine.	

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 :	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 oil storage drums.	

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 :	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

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 : 2-250 Gallon Used Lube Oil Storage Tanks	
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 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 : 600 Units : gal/yr
4. Maximum Production Rate : Units :
5. Operating Capacity Comment : Maximum throughput rate includes both tanks.

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

[ ] 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 4

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 emissions from Compressor Station No. 30 include fugitive 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 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 : Units :	
4. Maximum Production Rate : Units :	
5. Operating Capacity Comment : This section is not applicable to fugitive emissions.	

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

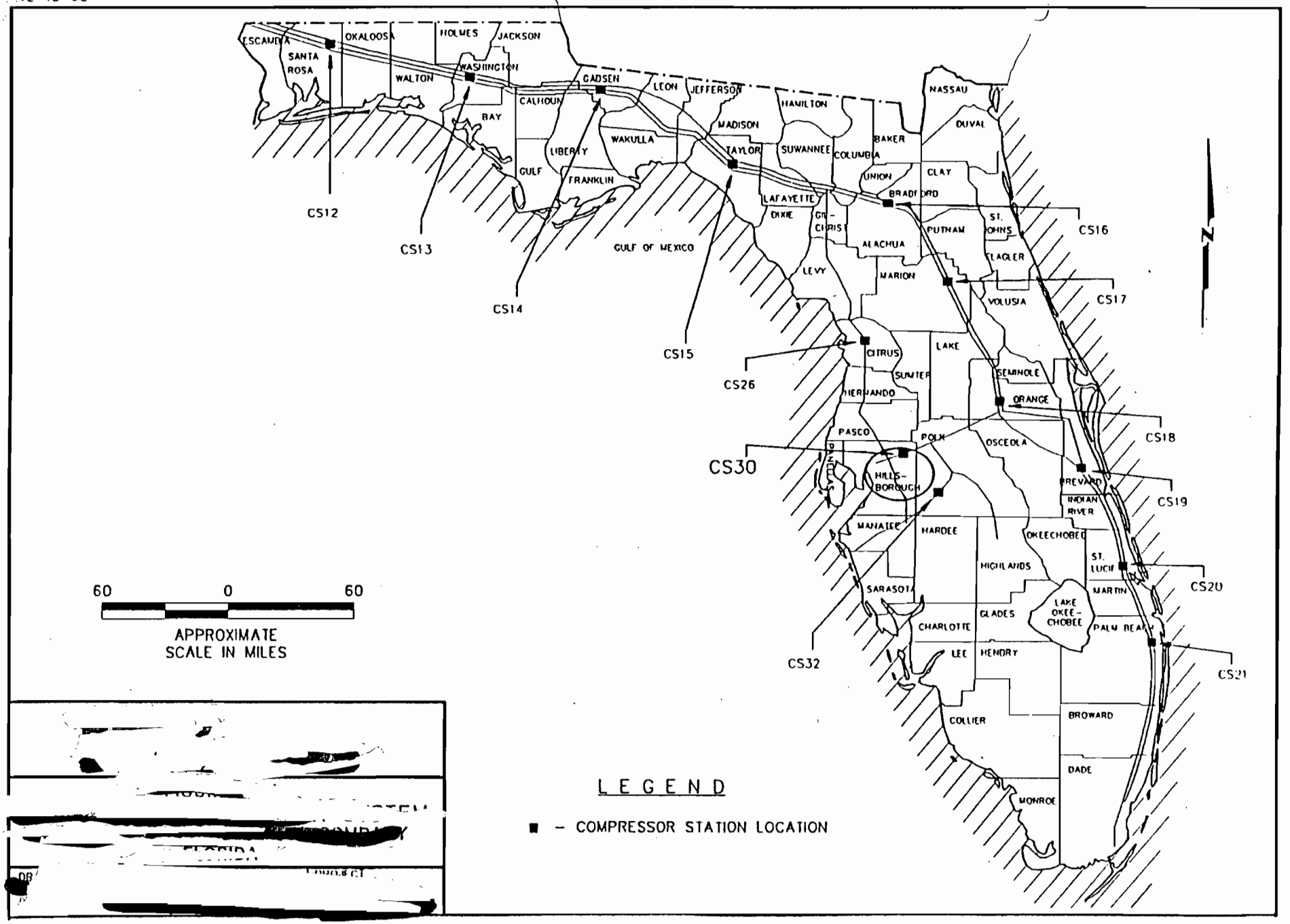
Supplemental Requirements for All Applications

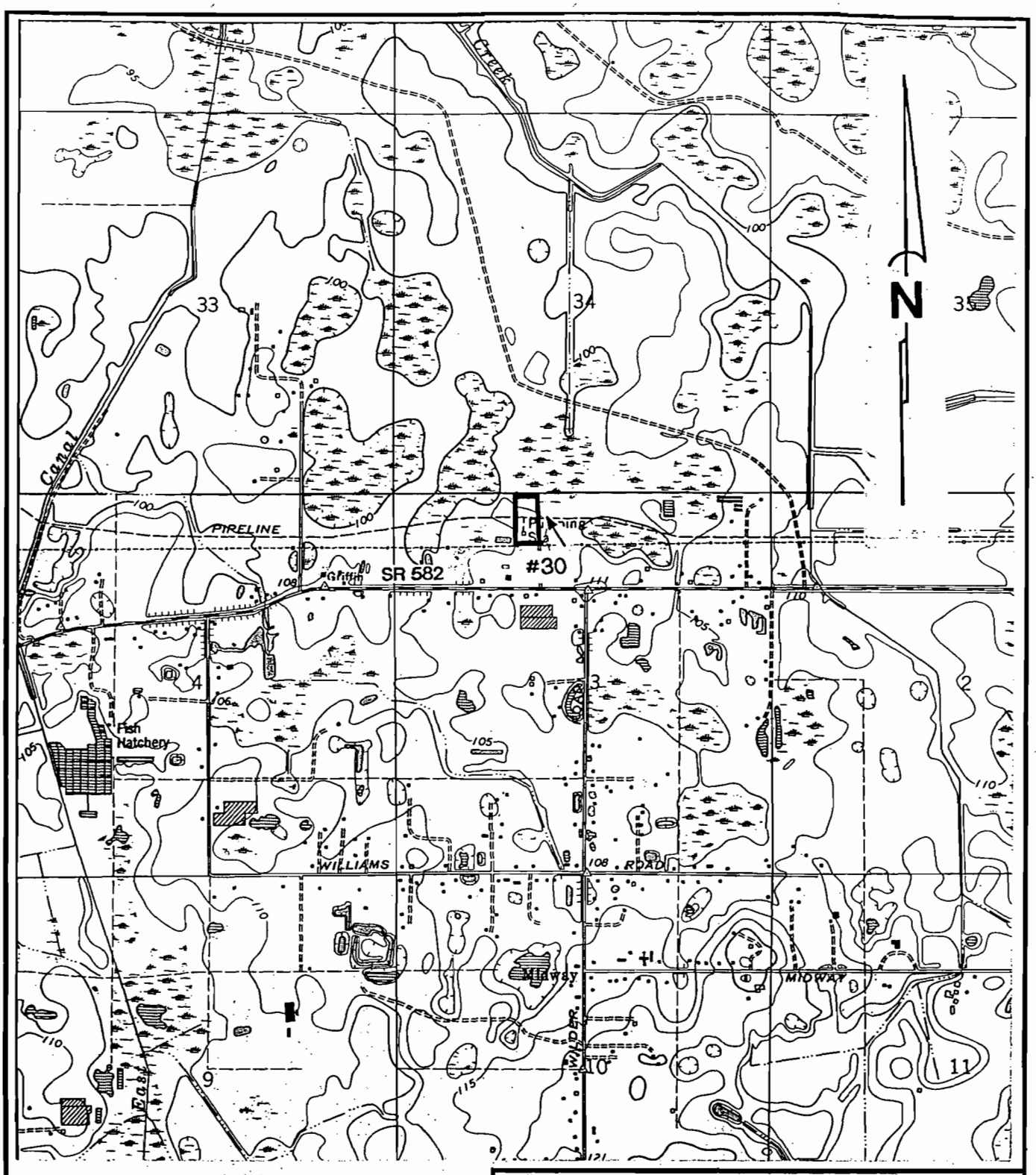
1. Process Flow Diagram :	NA
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Other Information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

ATTACHMENT 1

Area Map

CE679263
12-15-92





0 2000 4000

SCALE IN FEET

REFERENCE: U.S.G.S. Quadrangle Map for Plant City East, Florida, 1987.

TOPO

ENSR™

ENSR CONSULTING AND ENGINEERING

FIGURE 1-2

SITE LOCATION MAP

COMPRESSOR STATION #30

FLORIDA GAS TRANSMISSION COMPANY

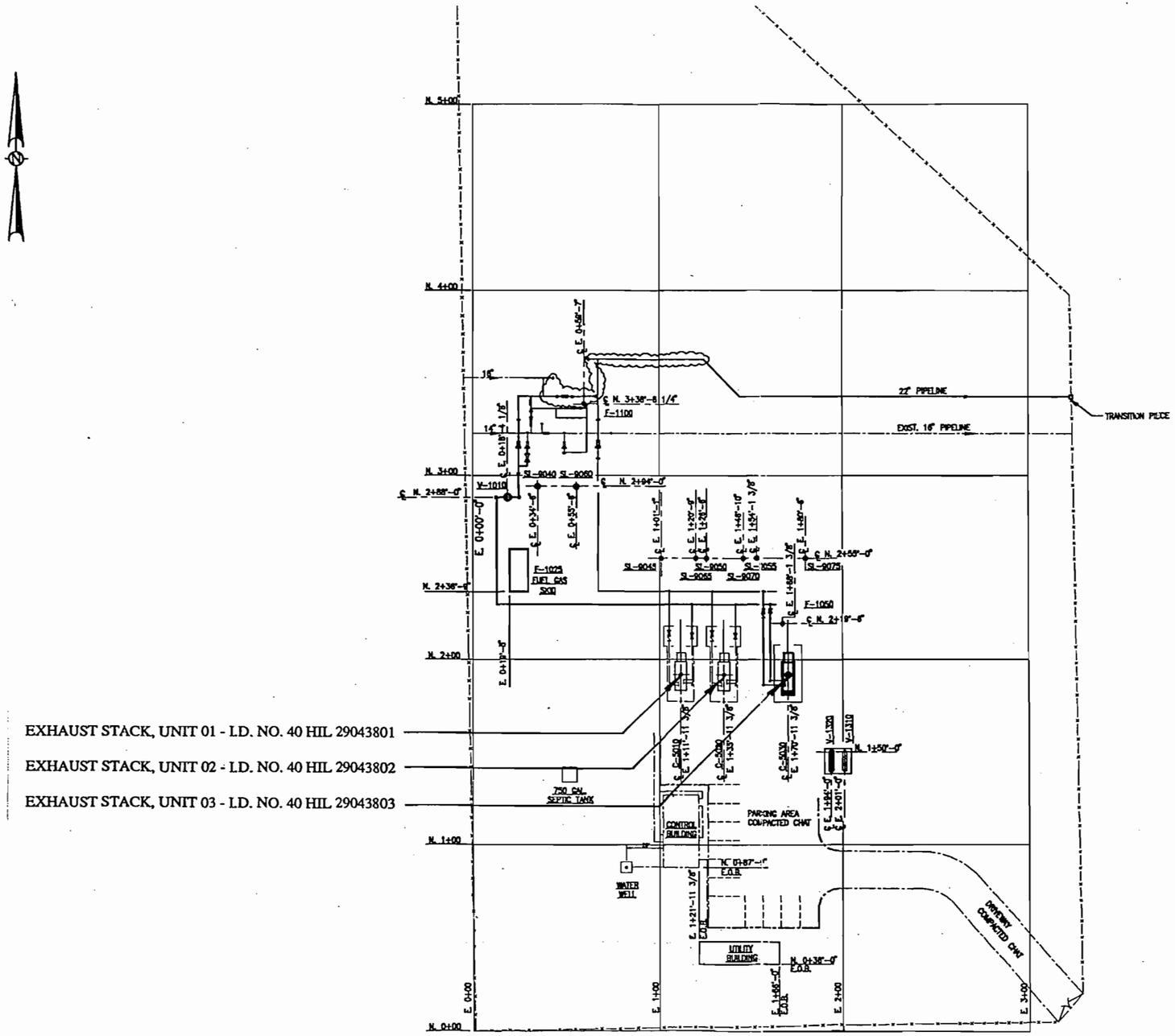
PLANT CITY, FLORIDA

DRAWN BY: SJF/SH	DATE: 12-16-92	PROJECT NUMBER:
CHK'D.BY:	REVISED: 1-12-93	6792-068-035

ATTACHMENT 2

Plot Plan

AIR EMISSIONS PLOT PLAN C/S 30
Source I.D. No. 40 HIL 29043801 through 29043803

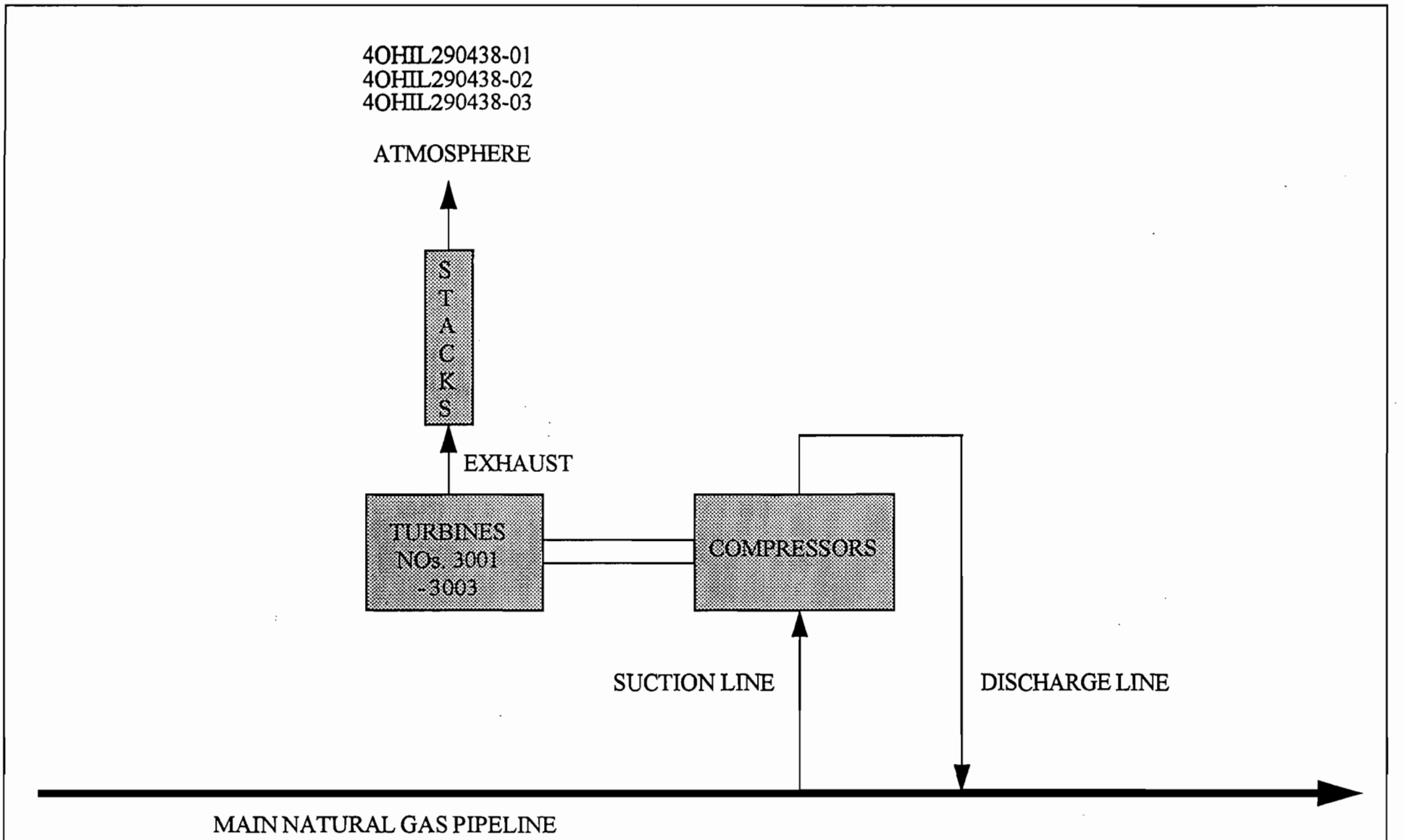


Florida Gas Transmission Company Houston, Texas	ENRON OPERATIONS CORP.
COMPRESSOR STATION NO. 30 PLOT PLAN HILLSBOROUGH COUNTY, FLORIDA	SO-1

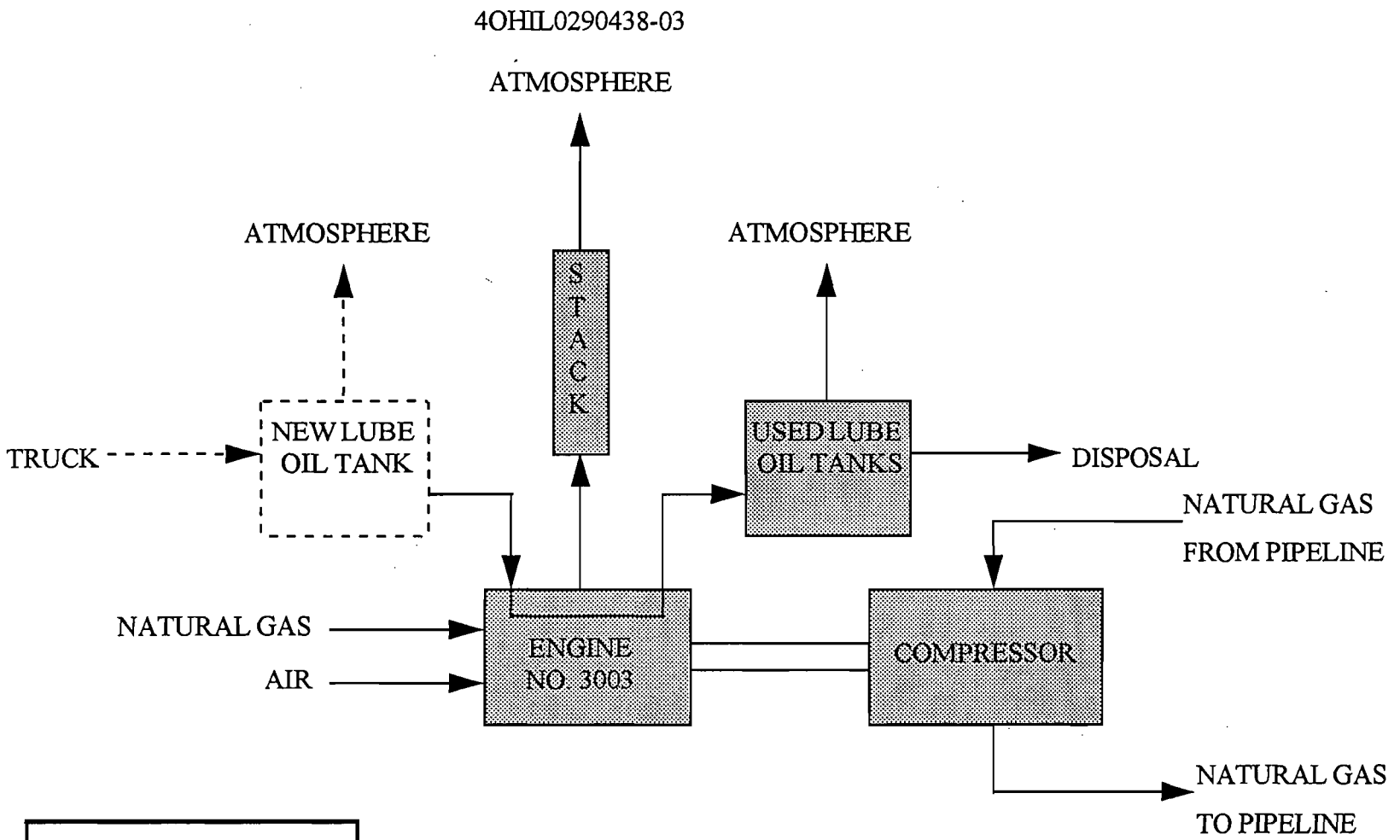
CAD FILE: Y:\WORK\522132\CLARIFY\301-30

ATTACHMENT 3

Process Flow Diagrams



AQMcs	DATE: 29 MAR 95	VDP
PROCESS FLOW DIAGRAM FOR STATION 30		



AQMcs	DATE: 27 MAR 95	VDP
PROCESS FLOW DIAGRAM FOR UNIT 3003		

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	0.0381	4.49	0.0028
PROPANE	152	0.437	0.1204	11.02	0.0067
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	0.0081	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	0.1285	0.00	0.0113
ETHANE	160	2.848	0.7618	50.52	0.0298
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 = .15023
ANALOG INPUT CHANNEL 2 = WATER 144 = 3.7902

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 Stoler

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- W&T
STANDARD GAS 1049 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 Ron Lack

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
NMHC		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.
BROKER 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

ATTACHMENT 5

Sampling Facility Drawings

Circular Stack Sampling Traverse Point Layout
(EPA Method 1)

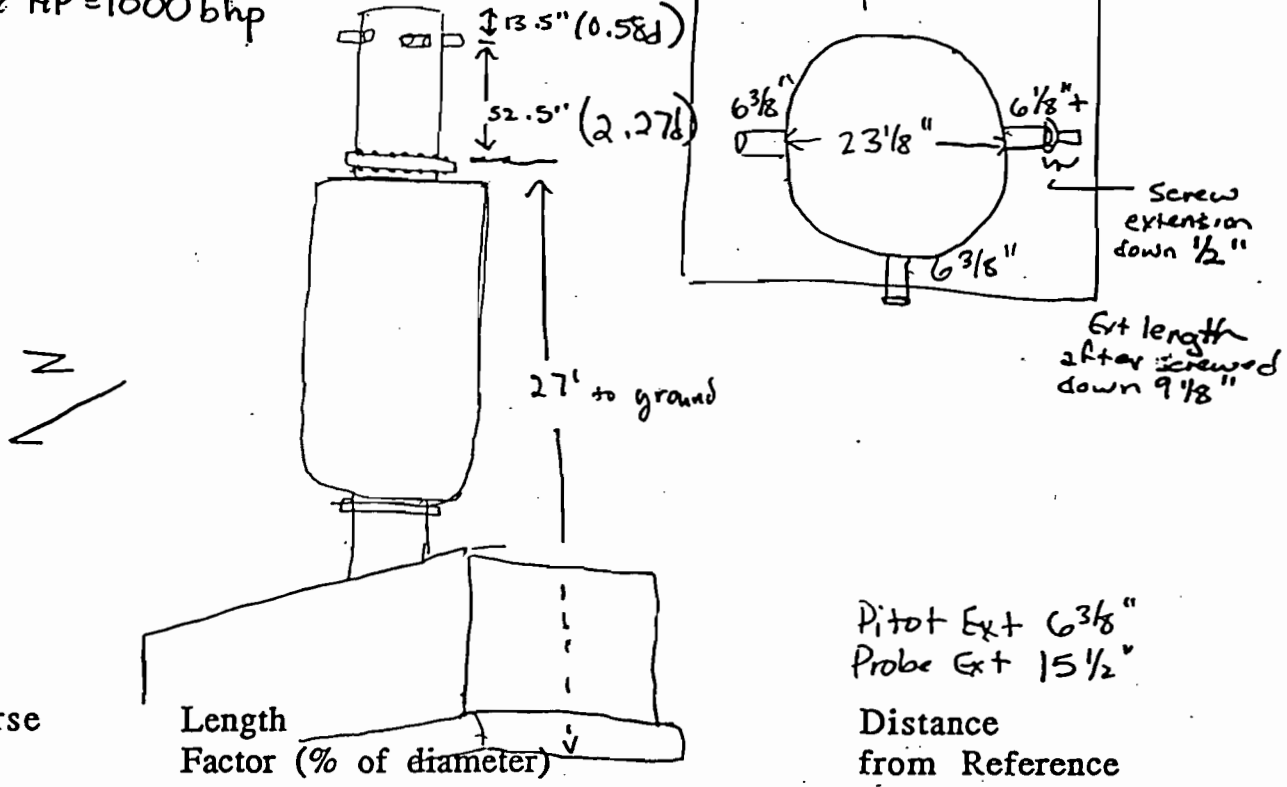
Date: February 23, 1995
Plant: FGT Compressor Station
Source: Solar Saturn Model T-10015-3126
Technician(s) LJB, CDC, LAB

Not a Solonox combustor

Port + Stack ID: 29.5 in.
Port Extension 6 3/8 in.
Stack ID: 23 1/8 in.
Stack Area 2.917 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)

Serial No. S401693
Max HP = 1000 bhp



Pitot Ext 6 3/8"
Probe Ext 15 1/2"

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	0.74
2	25.0	14.6	10.5	8.2	2.43
3	75.0	29.6	19.4	11.8	4.49
4	93.3	70.4	32.3	17.7	7.47
5		85.4	67.7	25.0	15.66
6		95.6	80.6	35.6	18.64
7			89.5	64.4	20.80
8			96.8	75.0	22.39
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 SATURN T-1001S TURBINE ENGINE
at
COMPRESSOR STATION NO. 30
near
PLANT CITY, FLORIDA

Prepared For

FLORIDA GAS TRANSMISSION COMPANY

March 1995

Cubix Job No. 2913

Prepared by

Cubix Corporation

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INTRODUCTION

Exhaust emissions from a Solar Saturn natural-gas fired combustion turbine was tested at Florida Gas Transmission Company's Compressor Station No. 30 located in Hillsborough 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 of Gainesville, Florida on February 23, 1995.

The purpose of this testing was to determine the emission compliance status of the turbine with regard to the construction permit, Florida Department of Environmental Protection (FDEP) Permit No. AC 29-228821 and the New Source Performance Standards (NSPS) requirements of 40 CFR 60, Subpart GG. Three test runs of at least one-hour in duration 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 B

Cubix Corporation

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:	One Solar Saturn Model T-1001S combustion turbine used to compress natural gas for pipeline transmission.
Test Date:	February 23, 1995
Location:	Compressor Station No. 30 is located 4 miles NE of Plant City on SR 582 in Hillsborough County, Florida (Permit Coordinates: 28°04'55" North/ 82°06'01" West).
Emission Sampling Points:	FDEP Natural Gas Compressor Engine ID 3003. The unit's circular exhaust stack has three 2" sample ports equipped with 6" extensions located in the 5.5 foot vertical section of the pipe atop a hospital grade silencer before venting to atmosphere (see Appendix A for stack diagram).
Test Participants:	**Florida Gas Transmission** Allan Weatherford Roy Smith

Cubix Corporation
Cory Criswell
Leonard Brenner
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 owns and operates Compressor Station No. 30 near Plant City in Hillsborough County, Florida. At this station one Solar Saturn 1001S combustion turbine/compressor unit was recently installed for compression of pipeline gas. The Solar turbine is permit designated as FDEP Natural Gas Turbine No. 3003. The emissions from this turbine is the subject of this report.

Three sixty-four minute (or longer) 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 the turbine, a sixteen point O_2-traverse was performed within the stack to determine the eight lowest points of O_2 concentration. No oxygen stratification was found in the exhaust, therefore, eight random traverse point were chosen in the following runs for sampling. The opacity of the stack gas was also visually monitored during each run. The unit was rated at 1000 bhp according to FGT personnel at the site. It was operated within 90% of this rating by an automated loading system (96.6% actual).

Tables 2 contains a tabular summary of the testing results for Unit No. 3003. The summary tables contain an average of the operating data recorded approximately every 10 minutes during the test from the turbines' control panels (supplied by FGT personnel), ambient conditions, the measured emissions, and permit specifications. 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 the 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 the 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. 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 measurement techniques for exhaust flow varied approximately 2.95%.

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 lower valued 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 continuous emission monitor outputs.

TABLE 2: Summary of Results
Unit No. 3003

Company: Florida Gas Transmission Company
Plant: Compressor Station #30
Location: 4 miles NE of Plant City in Hillsborough County, FL on SR 582
Techanicians: CDC, LJB, LAB
Source: Solar Saturn T-1001S-312F

Test Number	C-1	C-2	C-3		
Date	2/23/95	2/23/95	2/23/95		
Start Time	12:12	14:00	15:33		FDEP
Stop Time	13:18	15:10	16:37		Permit
Turbine/Compressor Operation				*Averages*	Limits
Power Turbine Speed (%)(NPT)	89.3	98.8	98.7	***95.6***	
Gas Producer Speed (%)(NGP)	98.9	88.3	88.0	***91.7***	
Estimated Horsepower (bhp, uncorrected)	971	985	944	***966***	**1202**
PCD Observed (psig)	64.5	64.1	64.0	***64.2***	
T-1 Temperature (°F)	75.0	75.0	74.3	***74.8***	
T-7 Temperature (°F)	888	887	886	***887***	
Gas Compressor Suction Pressure (psig)	662.8	674.1	683.8	***673.6***	
Gas Compressor Suction Temperature (°F)	65	65	65	***65***	
Gas Compressor Discharge Pressure (psi)	692.5	711.1	715.7	***706.4***	
Gas Compressor Discharge Temperature (°F)	89	89	88		
Compressor Flow (MMCFD)	113.8	115.5	115.5	***114.9***	
Fuel Data (Residue Gas)					
Fuel Heating Value (Btu/SCF-HHV)	1032	1032	1032	***1032***	
O2 "F-factor" DSCFH, O% excess air	8680	8680	8680	***8680***	
CO2 "F-factor" DSCFH, O% excess air	1026	1026	1026	***1026***	
Total Sulfur in Fuel (grains/100 SCF)	0.056	0.056	0.056	***0.056***	**10**
Fuel Flow (MMSCFH)	0.0129	0.0129	0.0128	***0.0129***	**0.0156**
Fuel Flow (MMBtu/hr)	13.30	13.29	13.25	***13.28***	**15.76**
Ambient Conditions					
Temperature (°F wet)	62	62	61	***62***	
Temperature (°F dry)	68	68	69	***68***	
Barometer (in. Hg)	30.09	30.05	30.05	***30.07***	
Humidity (lbs/lb of air)	0.0102	0.0102	0.0094	***0.0099***	
Measured Emissions					
NOx (ppmv, dry)	40.4	40.5	40.9	***40.6***	
NOx (ppm @ 15% O2)	**56.8**	**57.4**	**58.0**	***57.4***	**150**
NOx (ppm @15% O2, ISO Day)	**59.4**	**60.1**	**59.6**	***59.7***	**150†**
CO (ppmv, dry)	24.5	25.1	25.3	***25.0***	
O2 (% volume, dry)	16.70	16.74	16.74	***16.73***	
CO2 (% volume, dry)	2.38	2.36	2.38	***2.37***	
Fo	1.76	1.76	1.75	***1.76***	
THC (ppmv, dry as Methane via M-25A)	2.0	1.1	1.1	***1.4***	
Visible Emissions (% Opacity)	0	0	0	***0***	**10**
Stack Volumetric Flow Rates					
via Pitot Tube Traverse (SCFH, dry)	5.83E+05	5.35E+05	5.63E+05	***5.60E+05***	
via O2 "F-factor" (SCFH, dry)	5.75E+05	5.80E+05	5.78E+05	***5.77E+05***	
via CO2 "F-factor" (SCFH, dry)	5.73E+05	5.78E+05	5.71E+05	***5.74E+05***	
Mass Emissions (via EPA Methods 1-4)					
NOx (lbs/hr)	2.81	2.59	2.75	***2.72***	**3.95**
CO (lbs/hr)	1.04	0.98	1.03	***1.02***	**5.88**
THC (lbs/hr)	0.049	0.025	0.026	***0.033***	**0.25 ¥**
SO2 (lbs/hr, Based on fuel flow and fuel sulfur)	0.0020	0.0020	0.0020	***0.0020***	**0.44**
NOx (tons/yr)	12.3	11.3	12.0	***11.9***	**17.30**
CO (tons/yr)	4.55	4.28	4.53	***4.46***	**25.75**
THC (tons/yr)	0.21	0.11	0.11	***0.14***	**1.10 ¥**
SO2 (tons/yr, Based on fuel flow and fuel sulfur)	0.0090	0.0090	0.0089	***0.0089***	**1.94**
NOx (g/bhp-hr)	1.32	1.19	1.32	***1.28***	**1.49**
CO (g/bhp-hr)	0.486	0.451	0.498	***0.478***	**2.22**
THC (g/bhp-hr)	0.023	0.011	0.012	***0.015***	**0.95 ¥**

† EPA 40 CFR 60, Subpart GG NSPS requirement
¥ FDEP Permit limits are in 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. 30 located near Plant City in Hillsborough County, Florida. Three natural gas fueled combustion turbine units are used at this site for compression of natural gas for transport through the company pipeline. The exhaust emissions from one turbine, Unit No. 3003, were measured to determine compliance with the FDEP construction permit and EPA NSPS requirements. This section of the report provides a brief description of this unit.

The unit was manufactured by Solar, a Saturn T-1001S turbine engine. This unit is a simple cycle, split shaft combustion turbine used to compress pipeline gas.

The manufacturer nominal rating for this unit is 1000 bhp at the standard conditions of 101.3 Kpa and 288 °K . The source is permitted for the continuous operation of 8760 hours per year. Maximum natural gas fuel consumption is permitted for 0.0156 MMCF/hr with a heat input of 15.76 MMBtu/hr.

The exhaust sample ports, per the criteria of EPA Method 1, were located in a straight vertical section of exhaust pipe approximately 13.5 inches (0.6 diameter) upstream of venting to atmosphere and 52.5 inches (2.3 diameters) downstream of the silencer. The exhaust pipe was 23.125 inches in diameter. 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 operation. 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 the engine consisted of three sixty-four minute plus test runs. Per EPA Method 20 requirements, an initial O_2-traverse was combined with Run 30C-1. Sixteen points in the stack cross section were measured for four minutes at each point. The sampling time at each point was determined from the sampling systems response time (see *Quality Assurance Activities)* . No stratification of oxygen was found in the exhaust stack. Therefore, eight random points were sampled for 8 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 100' 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 100' long, 3/8" diameter Teflon® sample line via a stainless steel/Teflon® diaphragm pump and into the sample manifold. From the manifold, the sample was partitioned to the analyzers through glass and stainless steel rotometers for flow control of the sample.

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 traverse points and the EPA Method 20 traverse point locations. Pitot tube measurements were made at three separate traverse points in each stack cross section. The location of the sample ports and the pitot tube traverse point distances for the engine are described by the stack diagram located in Appendix A.

EPA Method 2 was used for determination of stack gas velocity during each run. An "S" type 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 points.

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 with a paramagnetic cell detector.

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 each test run. 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 greater than 21 cu. ft. during each test run. 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 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 on 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 battery operated wet/dry bulb psychrometer was used to determine ambient temperature 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 brake-horsepower.

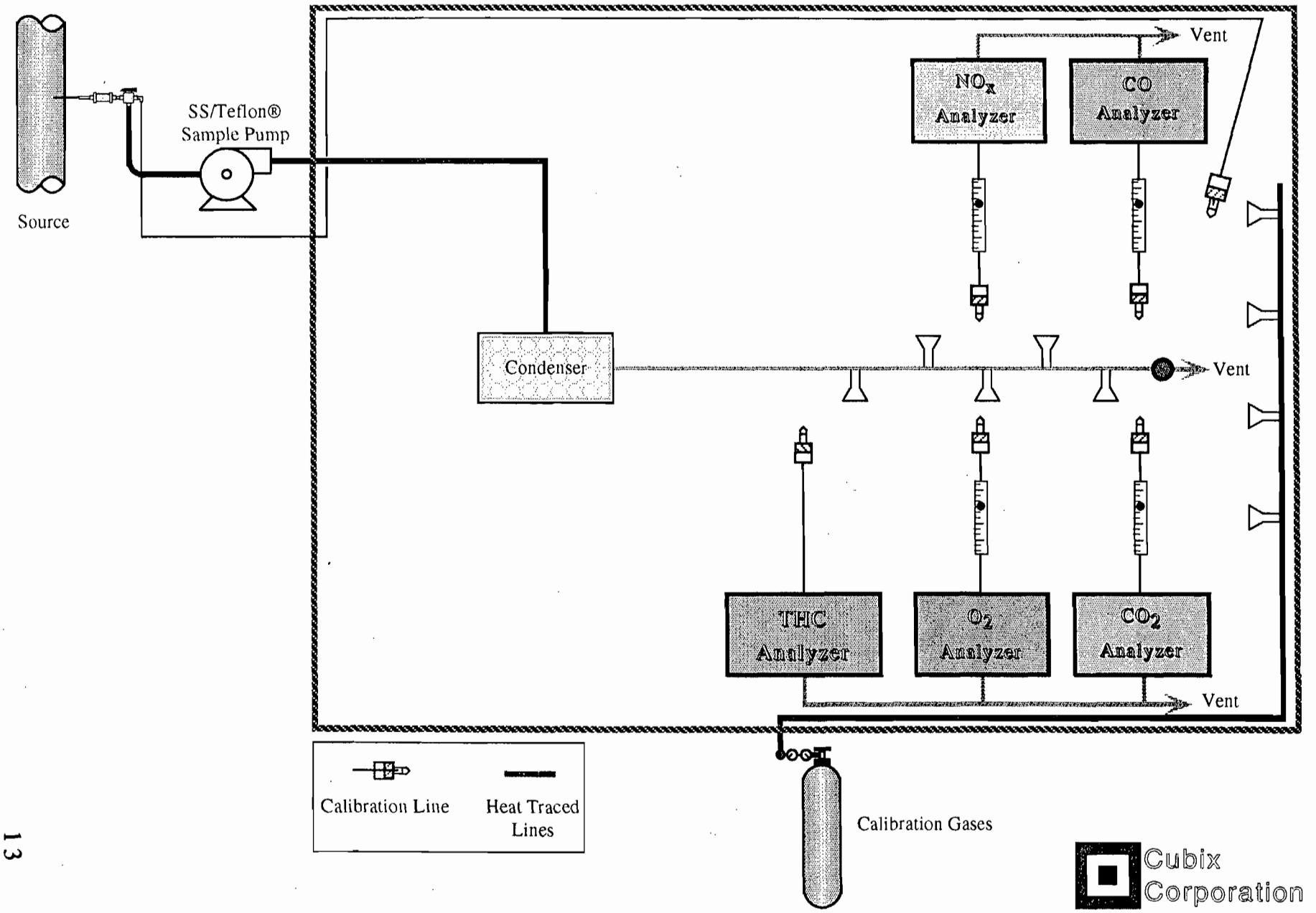
All emission calculations were conducted by a computer spreadsheet as shown in Table 2 of this report. Example calculations were performed manually using a hand-held calculator in order to verify the formulas used in the spreadsheet. Example calculations are located in Appendix B of this report.

TABLE 3:
Analytical Instrumentation

Parameter	Model and Manufacturer	Common Use Ranges	Sensitivity	Response Time (sec.)	Detection Principle
NOx	TECO 10AR	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 for listed ranges.
CO	TECO 48	0-10 ppm 0-20 ppm 0-50 ppm 0-100 ppm 0-200 ppm 0-500 ppm 0-1000 ppm	0.1ppm	10	Infrared absorption, gas filter correlation detector, micro-processor based linearization.
CO_2	Servomex 1410 B	0-4% 0-20%	0.02%	30	Infrared absorption, analog linearization.
O_2	Servomex 1420 B	0-10% 0-25 %	0.1%	15	Paramagnetic cell, inherently linear.
THC	JUM Model 5-100	0-10, 0-100, 0-1000, 0-10000 0-100000 ppm	0.2 ppm	5.0	Flame ionization of hydrocarbons inherently linear over 2 orders of magnitude.
HC Species	Varian 1200	0-10 ppm 0-100 ppm 0-1000 ppm	0.2 ppm	NA	Flame Ionization Detector

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 (calibration error check). The instrument linearity was checked by first adjusting the instrument zero and span responses to zero gas (purified nitrogen or hydrocarbon-free air) 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 $\pm$ 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. No drift in excess of 2% of span was found for the NOx, CO, O_2, and CO_2 analyzers.

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 0.20 SCF. Therefore, the minimum sample residence time was approximately 15 seconds.

The NOx and O_2 sampling and analysis systems were checked on-site for response time per the procedures outlined in EPA's Method 20. The average NOx analyzer's response times were 81 seconds upscale and 80 seconds downscale for the sample system used with the 130' sample line and 100' heat trace. The O_2 analyzer's response times were 77 seconds upscale and 73 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 4.0-minutes per point for the initial O_2 traverse on the turbine engine and 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 (>26 "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 2%.

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 $\pm 1\%$ 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 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: Phase III, CS #30 DATE: Feb. 23, 1995

LOCATION: Plant City, Florida PERMIT # AC 29-228821

SOURCE(S): Solar Turbine/Compressor
Set Model T-10015-312F
Unit 3003

PARTICIPANTS
Cubix Corporation
Florida Gas Transmission
Enron Corporation

REPRESENTATIVES:

NAME	AFFLIATION	PHONE NUMBER
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DAVID JACKSON	FGT	813-665-0973
JIM GROENJES	FGT	813-865-0973

Circular Stack Sampling Traverse Point Layout
(EPA Method 1)

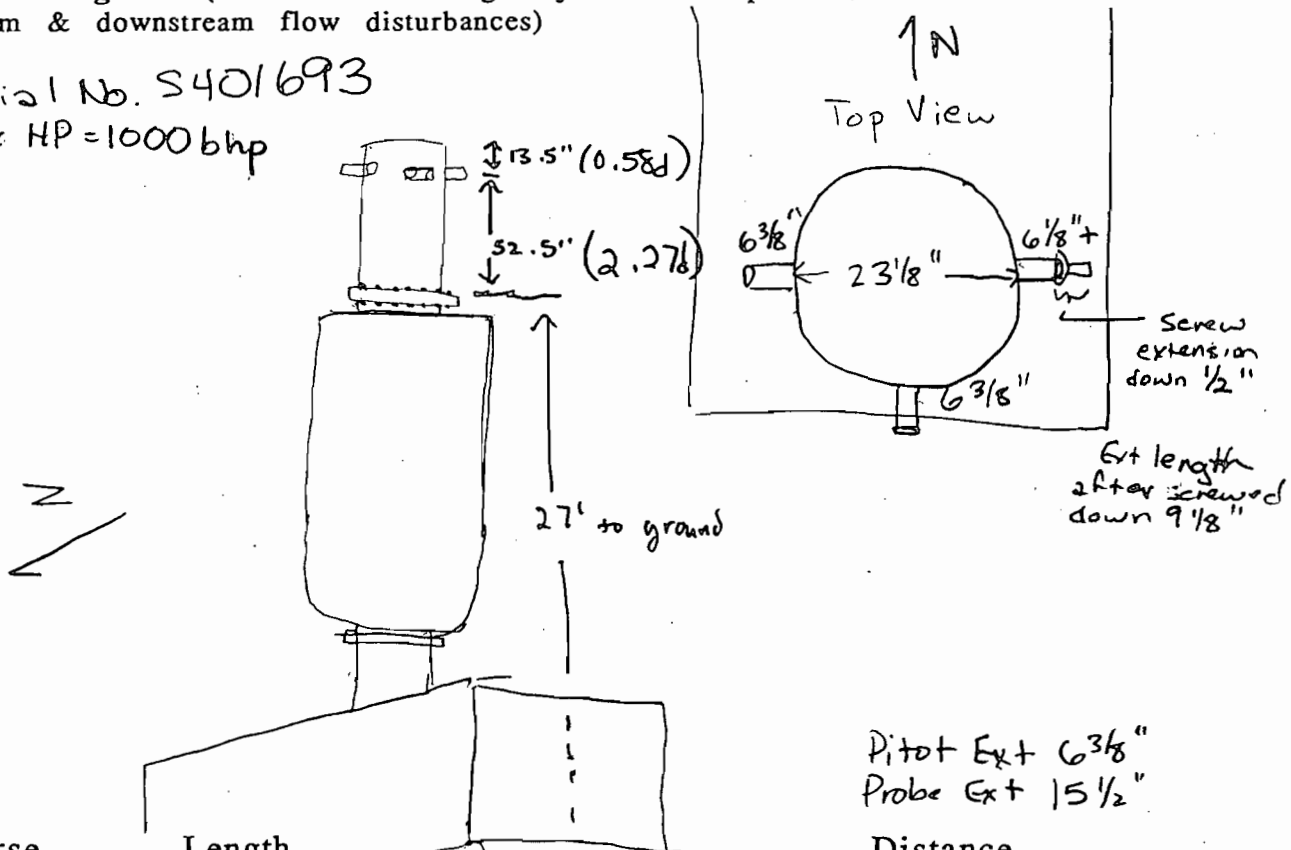
Date: February 23, 1995
Plant: F6T Compressor Station
Source: Solar Saturn Model T-10015-3126
Technician(s) LJB, CDC, LAB

Not a Solonox combustor

Port + Stack ID:. 29.5 in.
Port Extension 6 3/8 in.
Stack ID: 23 1/8 in.
Stack Area 2.917 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)

Serial No. S401693
Max HP = 1000 bhp



Pitot Ext 6 3/8"
Probe Ext 15 1/2"

Traverse Point Number	Length Factor (% of diameter) Number of traverse pts./diameter 4	6	8	12	Distance from Reference Point (inches)
1	6.7	4.4	3.2	2.1	0.74
2	25.0	14.6	10.5	8.2	2.43
3	75.0	29.6	19.4	11.8	4.49
4	93.3	70.4	32.3	17.7	7.47
5		85.4	67.7	25.0	15.66
6		95.6	80.6	35.6	18.64
7			89.5	64.4	20.80
8			96.8	75.0	22.39
9				82.3	
10				88.2	
11				93.3	
12				97.9	

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

Test Run No.	C-1	C-2	C-3
Date	2/23/95	2/23/95	2/23/95
Start Time	11:59	13:55	15:33
Stop Time	12:43	14:45	16:37
Stack Moisture & Molecular Wt.			
CO2 (%)	2.38	2.36	2.38
O2 (%)	16.70	16.74	16.74
Beginning Meter Reading (ft3)	825.90	848.76	876.46
Ending Meter Reading (ft3)	848.47	876.11	899.21
Beginning Impinger Wt. (g)	2456.2	2483.8	2515.6
Ending Impinger Wt. (g)	2483.8	2515.6	2541.7
Dry Gas Meter Factor (Kd)	0.9942	0.9942	0.9942
Dry Gas Meter Temperature (°F, begin)	92	84	80
Dry Gas Meter Temperature (°F, end)	94	94	84
Atmospheric Pressure ("Hg, abs.)	30.09	30.05	30.05
Stack Gas Moisture (% volume)	5.70	5.40	5.27
Dry Gas Fraction	0.943	0.946	0.947
Stack Gas Molecular Wt. (lbs/lb-mole)	28.42	28.45	28.47
Stoichiometric Moisture			
Combustion Moisture at 0% excess O2	18.58	18.58	18.58
Stoichiometric Moisture (% volume)	5.38	5.38	5.38
Velocity Pitot Tube Data			
Pitot Tube Factor	0.822	0.822	0.822
ΔP #1	2.55	2.05	2.00
ΔP #2	2.50	2.25	2.40
ΔP #3	2.90	2.70	2.75
ΔP #4	3.30	3.45	3.45
ΔP #5	3.50	3.05	3.55
ΔP #6	2.80	2.60	2.85
ΔP #7	2.25	2.00	2.55
ΔP #8	1.95	1.90	2.05
ΔP #9	2.05	1.40	1.90
ΔP #10	2.55	2.05	2.05
ΔP #11	2.75	2.45	2.60
ΔP #12	3.00	3.00	3.05
ΔP #13	3.60	2.90	3.40
ΔP #14	3.80	2.40	2.85
ΔP #15	3.05	1.95	2.40
ΔP #16	2.60	1.85	1.90
Sum of Square Root of ΔP's	26.763	24.505	25.709
Number of Traverse Points	16	16	16
Average Square Root of ΔP's	1.6727	1.5316	1.6068
Average Temperature (°F)	845	844	844
Static Pressure (in. H2O)	-2.5	-2.1	-1.9
Stack Diameter (in.)	23.125	23.125	23.125
Stack Area (ft2)	2.917	2.917	2.917
Stack Velocity (ft/min)	8738	7994	8383
Stack Flow, wet (ACFM)	25485	23317	24451
Stack Flow, dry (SCFH)	**5.83E+05**	**5.35E+05**	**5.63E+05**

Testing by Cubix Corporation of Gainesville, Florida

MOISTURE AND VELOCITY FIELD DATA SHEETS

Date: February 23, 1995
Plant/Operator: FGT Comp. St. No. 30
Source: Unit 3003 Solar Turbine/comp.
Technicians: LJB, CDC
Atm. Pres. 30.09 in.Hg(Pb)
Test Run # ~~OC~~ -1

Dry Gas Meter ID: Tr. 5 Equimeter
Dry Gas Meter Factor: 0.9942 (Kd)
Pitot Tube #/Type: 1/4 " SS. S-Type / #105
Pitot Tube Factor: ~~0.84~~ 0.822 (Kp)
Static Pres. -2.5 in.H2O(Pg)
Average Stack Temp. 845 °F(Ts)

Pre-test Leak check	0.000 *ft.3*/min at 15.5 in. Hg Vacuum
Post-test Leak check	~~.004~~ .000 *ft.3*/min at 15 in. Hg Vacuum

Impinger #	Contents	Initial Weight	Final Weight
1	Di H_2O	645.6g	664.5
2	Di H_2O	640.5g	642.9
3	Empty	466.0g	466.4
4	Si Gel	704.1g	710.0
5			
6			
Totals		2456.2	2483.8

.1/1540 .4/60

8" Hg draw

Moisture Train

	Initial	Final
Time:	11:59	1243
Meter Reading (*ft3* or L)	825.900 ~~824.785~~	848.474
Meter Temp. (°F)	92	94
~~Sample Box #~~ exit temp	44°F	

O2 %	16.70%
CO2 %	2.38%

15 cf. 30/30

Pitot Tube Traverse/Stack Temp./Angle

Traverse Pt.	ΔP (" H2O)	°F	ß	ΔP (" H2O)	°F	ß
1	2.55			2.05		
2	2.5			2.55		
3	2.9			2.75		
4	3.3			3.0		
5	3.5			3.6		
6	2.8			3.8		
7	2.25			3.05		
8	1.95			2.6		
9						
10						
11						
12						

MOISTURE AND VELOCITY FIELD DATA SHEETS

Date: 2-23-95
Plant/Operator: FGT
Source: 303 Solar Saturn
Technicians: cc/a.B /LB
Atm. Pres. 30.05 in.Hg(Pb)
Test Run # 30C-2

Dry Gas Meter ID: Tr. 5 Equimeter
Dry Gas Meter Factor: .9942 (Kd)
Pitot Tube #/Type: # 105 1/4" SS S-Type
Pitot Tube Factor: 1/4 SS 0.822 (Kp)
Static Pres. -2.1 in.H2O(Pg)
Average Stack Temp. 844 °F(Ts)

Pre-test Leak check	.001 / .15 ft.3/min at in. Hg Vacuum
Post-test Leak check	.000 / .14 ft.3/min at in. Hg Vacuum

Impinger #	Contents	Initial Weight	Final Weight
1	H2O	664.5	686.3
2	H2O	647.9	645.3
3		466.4	467.1
4	Sigel	410.0	716.9
5			
6			
Totals		2483.8	2515.6

Moisture Train

	Initial	Final
Time:	1355	1445
Meter Reading (ft3 or L)	848.760	876.110
Meter Temp. (°F)	84 / 87 / 110	92
~~Sample Box #~~ EXIT TEMP		~~94~~ 45°

O2 %	16.74%
CO2 %	2.27%

Pitot Tube Traverse/Stack Temp./Angle

Traverse Pt.	ΔP (" H2O)	°F	ß	ΔP (" H2O)	°F	ß
1	2.05			1.4		
2	2.25			2.05		
3	2.7			2.45		
4	3.45			3.0		
5	3.05			2.9		
6	2.6			2.4		
7	2.0			1.95		
8	1.9			1.85		
9						
10						
11						
12						

MOISTURE AND VELOCITY FIELD DATA SHEETS

Date: 2-23-95
Plant/Operator: Sta 30
Source: 3003
Technicians: CDC, LJB
Atm. Pres. 30.05 in.Hg(Pb)
Test Run # 30C-3

Dry Gas Meter ID: To.5 Equimeter
Dry Gas Meter Factor: 0.9942 (Kd)
Pitot Tube #/Type: #105 / 1/4" SS S-Type
Pitot Tube Factor: 0.822 (Kp)
Static Pres. -1.9 in.H2O(Pg)
Average Stack Temp. 844 °F(Ts)

Pre-test Leak check	0.002 (ft.3)/min at 14" in. Hg Vacuum
Post-test Leak check	0.000 (ft.3)/min at 14" in. Hg Vacuum

Impinger #	Contents	Initial Weight	Final Weight
1	Di H_2O	686.3	704.0 ~~729.4~~
2	Di H_2O	645.3	647.6
3	Empty	467.1	467.7
4	Si Gel	716.9	722.4
5			
6			
Totals		2515.6	2541.7

Sample @ 8"Hg

Moisture Train

	Initial	Final
Time:	1533	1618
Meter Reading (ft3 or L)	876.459	899.208
Meter Temp. (°F)	80°F	84
~~Sample Box #~~ exit Temp		53°F
O2 %		16.74%
CO2 %		2.38%

Pitot Tube Traverse/Stack Temp./Angle

Traverse Pt.	ΔP (" H2O)	°F	ß	ΔP (" H2O)	°F	ß
1	2.0			1.9		
2	2.4			2.05		
3	2.75			2.6		
4	3.45			3.05		
5	3.55			3.4		
6	2.85			2.85		
7	2.55			2.4		
8	2.05			1.9		
9						
10						
11						
12						

APPENDIX B:
Example Calculations

EXAMPLE CALCULATIONS

Calculate NO_x Emission Standard (per Subpart GG)

refers to Test Runs 30C-1 through 30C-3:

For turbines with a max. heat input between 10-100 MMBtu/hr which includes Unit No 3003.

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

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 = 15.76 (MMBtu/hr)

HP_{FDEP} = manufacturer's rated horsepower = 1000 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

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

$$= \left(\frac{15.76 \text{ (MMBtu/hr)}}{1000 \text{ bhp}} \right) \times \left(\frac{936 \text{ Btu/SCF}}{1040 \text{ Btu/SCF}} \right)$$

$$= 14{,}184 \left(\frac{\text{Btu}}{\text{bhp-hr}} \right)$$

As "Y" is >10,180 $\left(\frac{\text{Btu}}{\text{bhp-hr}} \right)$ then use 10,180 $\left(\frac{\text{Btu}}{\text{bhp-hr}} \right)$:

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

ppmv NO_x Standard = 150 ppmv NOx @ ISO Day

Moisture Content (via Humidity and Stoichoimetric approx.)

Refers to Test Run #30C-1

H_{amb} = ambient humidity (lbs H_2O/ lb air) = 0.0102 lbs/lb air
C_{O_2} = concentration of O_2 = 16.70% (from analyzer)
F_{stoi} = stoichiometric moisture @ 0% O_2 = 18.58% vol.
$F_{hum.}$ = humidity moisture = H_{amb} x 1.61 x 100
$F_{com.}$ = combustion moisture (% volume)

F_w = moisture fraction by % volume

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

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

$$F_w = 18.58 \times \left(\frac{20.9 - 16.70}{20.9}\right) + (0.0102 \times 1.61 \times 100)$$

$$F_w = 5.38 \ \% \text{ moisture}$$

Moisture Content via EPA Method 4

refers to Test Run#30C-1

MWC	= net impinger gain = 2483.8 - 2456.2	= 27.6 g
0.9942	= dry gas meter factor	
V_{cor}	= corrected net volume sampled (ft^3)	= 22.443 ft^3
P_{atm}	= atmospheric pressure	= 30.09"Hg
T_{met}	= average meter temperature	= 93.0 °F

F_w = moisture content (%)

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

$$F_w = \frac{27.6 \times 1.335}{(27.6 \times 1.335) + \left(\frac{(22.443 \times 30.09)}{(93.0 + 460)} \times (499.4)\right)} \times 100$$

F_w = **5.70 % moisture**

Stack Gas Molecular Weight

Refers to Test Run #30C-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 = 0.0238(from analyzer)
C_{O_2} = concentration of O_2 = 0.1670(from analyzer)
C_{N_2} = concentration of N_2 = $1-(C_{CO_2}+C_{O_2}) = 0.8092$
F_d = dry gas fraction = 1 - Fw = 0.9430

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

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

$$= (18 \times 0.0570) + (0.9430 \times ((44 \times 0.0238) + (32 \times 0.1670) + (28 \times 0.8092)))$$

MW = **28.42 lb/lb-mole**

Stack Gas Flow Rate via Pitot Tube

Refers to Test Run #30C-1

K_p = pitot tube factor = 0.822

ΔP = pressure difference in stack as measured (in. H_2O)

$\sqrt{\Delta P_{av}}$ = average of square root of ΔP's = 1.6727

T_s = stack temperature = 845 °F + 460 °R = 1305 °R

P_b = atmospheric pressure (in Hg) = 30.09 "Hg

P_g = stack static pressure (in. H_2O) = -2.5 "H_2O

P_s = absolute stack pressure

= P_b + (Pg x .0735 in.Hg / in.H_2O) = 29.91 "Hg

V = stack velocity (ft/min)

$$= 5128.8 \times K_p \times (\sqrt{\Delta P})_{avg} \times \sqrt{\frac{T_s}{(P_s \times MW)}}$$

$$= 5128.8 \times 0.822 \times 1.6727 \times \sqrt{\frac{1305}{(30.09 \times 28.42)}}$$

= 8711.4 ft/min

Q_a = stack flow rate (ft^3/min)

= V x A , where A= area of stack = 2.917 ft^2

= 8711.4 x 2.917 = 25,411 ft^3/min

Qd = stack flow rate on dry basis at standard conditions (SCFH)

= Q_a x 1059 x (Ps / Ts) x Fd

= 25,411 x 1059 x (29.91/ 1305) x 0.9430

Qd = 5.82×10^5 SCFH **(diff. due to rounding)**

Stack Gas Flow Rates via F-factors (Qd)

refers to Test Run #30C-1

Convert mass fuel flow to volumetric fuel flow:
Hg = heating value of residue gas = 1032.1 Btu/SCF (gross) from fuel analysis
F = fuel flow = 12889 SCFH from fuel meter
H = heat input (MMBTU/hr)
= Hg x F/(1 x 10^6) = 13.30 MMBTU/hr

Calculate flow rate using O_2 F-factor on Run C-19:
C_{O2} = O_2 concentration in exhaust = 16.70 % by vol, dry
O_2 F-factor = 8680 DSCF of Exhaust/MMBtu of fuel burned @ 0% excess air

Qd_1 = Stack Exhaust Gas Flow Rate via O_2 F-factor

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

$$Qd_1 = \frac{13.30 \times 8680 \times 20.9}{20.9 - 16.70}$$

Qd_1 = 5.74 x 10^6 DSCFH **(diff. due to rounding)**

Calculate flow rate using CO2 F-factor
Using same data as above, except:
C_{CO2} = Concentration of CO_2 in exhuast = 2.38 % vol,dry
CO_2 F-factor = 1026 DSCF of CO2/ MMBtu of fuel burned @ 0% excess air

Qd_2 = Stack Exhaust Gas Flow Rate via CO_2 F-factor

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

$$Qd_2 = \frac{13.30 \times 1026 \times 100}{2.38}$$

Qd_2 = 5.73 x 10^6 DSCFH

F_o Calculation to Verify O2/CO2 Measurements

refers to Test Run #30C-1

C_{CO_2} = concentration of carbon dioxide = 2.38 % (from analyzer)
C_{O_2} = concentration of oxygen = 16.70% (from analyzer)

$$F_o = \frac{20.9 - \%\ O_2}{\%\ CO_2}$$

$$F_o = \frac{20.9 - 16.70}{2.38}$$

F_o = 1.76 *(acceptable F_o values for natural gas = 1.600 to 1.836)*

NOx Correction to 15% O2

refers to Test Run #30C-1

NO_x = observed NOx concentration = 40.4 ppmv
C_{O_2} = concentration of oxygen = 16.70 % (from analyzer)

$$NOx\ @15\%\ O_2 = NO_x \times \frac{(20.9 - 15.0\ \%O_2)}{(20.9 - C_{O2})}$$

$$= 40.4 \times \frac{5.9}{(20.9 - 16.70)}$$

$NOx\ @15\%\ O_2$ = 56.8 ppmv

FDEP Permit ISO-day Correction for NOx

refers to Test Run 21C-1

H_{obs} = observed humidity of ambient air = 0.0102 (lbs / lb air)
C_{NO_x} = concentration of NOx @ 15% O_2 = 56.8 ppmv @15% O_2
P_{ref} = reference combustor inlet pressure = 101.3 kpa
P_{obs} = observed combustor inlet pressure
= 30.09 "Hg x 3.3864 kpa/ "Hg = 101.9 kpa
T_{amb} = ambient temperature of inlet air
= (68 °F - 32 °F) x (5/9) + 273.15 °C = 293.15 °K

$NO_X(FDEP)$ = NO_X concentration @ISO conditions

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

$$= 56.8 \times \sqrt{\frac{101.3}{101.9}} \times \left(\frac{288}{293.15}\right)^{1.53} \times 2.718^{19(0.0102 - 0.00633)}$$

$NO_X(FDEP)$ = **59.3 ppmv @ ISO Day Conditions**
(diff. due to rounding)

<u>S Concentration (using ASTM D3246 Analysis)</u>
refers to Test Run #30C-1

S = concentration of S (grains/100SCF_R) found in the Brooker fuel analysis = 0.0555 gr/CSCF
MW_{CR} = molecular weight of residue gas = 16.92 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

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

$$= \left(\frac{0.0555\ gr\ S}{100\ SCF_R}\right) \times \left(\frac{1\ lb\ S}{7000\ gr\ S}\right) \times \left(\frac{385.15\ SCF/lb\text{-}mol_R}{16.92\ lb/lb\text{-}mol_R}\right) \times 100$$

C_S = 1.80×10^{-4} wt%

SO_2 Mass Emission Rate (lbs/hr)

Refers to Test Run #30C-1

F = engine fuel flow from fuel meter = 12889 SCFH
for ideal (residue) gas, 385.15 SCF = 1.0 lb/mole per EPA
MW_{CR} = molecular weight of residue gas = 16.92 lb/lb-mol
Flow = engine fuel flow from fuel meter
= 12889 SCFH x (16.92/385.15) = 566.2 lb/hr fuel
MW_{SO_2} = molecular weight of sulfur dioxide = 64.06 lb/lb-mol
MWS = molecular weight of sulfur = 32.06 lb/lb-mol

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

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

$$= \left(\frac{1.80 \times 10^{-4}}{100}\right) \left(\frac{\text{lbs S}}{\text{lb fuel}}\right) \times 566.2 \text{ lbs/hr fuel} \times \left(\frac{64.06 \text{ lb/lb-mol}}{32.06 \text{ lb/lb-mol}}\right)$$

E_{SO_2} = 0.0020 lbs/hr S expressed as SO_2

NOx Mass Emission Rate (lbs/hr)

Refers to Test Run #30C-1

NOx = uncorrected concentration of NOx = 40.4 ppmv
MW = 46.01 lb/lb-mole for nitrogen dioxide
for ideal gas, 385.15 SCF = 1.0 lb/mole
Qd = 5.82×10^5 SCFH (from pitot tube volumetric flow)

E_{NO_x} = mass emission rate of NOx in (lb/hr)
= $NO_x\ 10^{-6} \times Q_d \times (MW / 385.15)$

= $40.4 \times 10^{-6} \times 5.82 \times 10^5 \times (46.01 / 385.15)$

E_{NO_x} = 2.81 lbs/hr

CO Mass Emission Rate (lbs/hr)
Refers to Test Run #30C-1

CO = observed concentration of CO = 24.5 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)

$= 24.5 \times 10^{-6} \times 5.82 \times 10^{5} \times (28 / 385.15)$

$E_{CO} = 1.04$ lbs/hr

THC Mass Emission Rate (lbs/hr)
Refers to Test Run #30C-1

THC = concentration of all organic compounds including methane
= 2.0 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)

$= 2.0 \times 10^{-6} \times 5.82 \times 10^{5} \times (16.04 / 385.15)$

$E_{THC} = 0.049$ lbs/hr

NOx Mass Emission Rate (tons/yr)
Refers to Test Run #30C-1

E_{NO_x} = mass emission rate of NOx in (lb/hr) = 5.50 lbs/hr
Permitted hours per year of unit operation = 8760 hrs/yr

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

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

$$= 2.81 \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}}$$

NO_x yr. = 12.3 tons/yr

SO_2 Mass Emission Rate (tons/yr)
Refers to Test Run #30C-1

E_{SO_2} = mass emission rate of SO_2 in (lb/hr) = 0.0020 lbs/hr
using same formula as for NOx mass emission rate

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

$$= 0.0020 \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}}$$

SO_2 yr. = 0.0088 tons/yr (differences due to rounding)

CO Mass Emission Rate (tons/yr)
Refers to Test Run #30C-1

E_{CO} = mass emission rate of CO in (lb/hr) = 1.04 lbs/hr
using same formula as for NOx mass emission rate

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

$$= 1.04 \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}}$$

CO yr. = 4.56 tons/yr (diff. due to rounding)

THC Mass Emission Rate (tons/yr)
Refers to Test Run #30C-1

E_{THC} = mass emission rate of THC in (lb/hr) = 0.049 lbs/hr
using same formula as for NOx mass emission rate

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

$$= 0.049 \times \frac{8760 \text{ hr}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}}$$

THC yr. = 0.21 tons/yr

NOx Mass Emission Rate (g/bhp•hr)
Refers to Test Run #30C-1

E_{NO_x} = 2.81 lb/hr
HP = nominal engine horsepower = 971 bhp

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

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

$$= \frac{2.81 \text{ lb/hr} \times 454 \text{ g/lb}}{971}$$

NO_X em. = 1.32 g/bhp•hr

CO Mass Emission Rate (g/bhp•hr)
Refers to Test Run #30C-1

E_{CO} = 1.04 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)

$$= \frac{1.04 \text{ lb/hr} \times 454 \text{ g/lb}}{971}$$

CO em. = 0.486 g/bhp•hr

THC Mass Emission Rate (g/bhp•hr)
Refers to Test Run #30C-1

E_{THC} = 0.049 lb/hr
using the same formula as for the NO_X mass emissionrate

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

$$= \frac{0.049 \text{ lb/hr} \times 454 \text{ g/lb}}{971}$$

THC em. = 0.023 g/bhp•hr

APPENDIX C:
Fuel Analysis And Calculations

ANALYSIS

DATE: 02/23/95 ANALYSIS TIME: 345 STREAM SEQUENCE: 1
TIME: 10:43 CYCLE TIME: 360 STREAM#: 1
ANALYZER#: 2 MODE: RUN CYCLE START TIME: 10:37

COMP NAME	COMP CODE	MOLE %	GAL/MCF**	B.T.U.*	REL DEN*
HEXANE +	151	0.066	0.0288	3.40	0.0021
PROPANE	152	0.373	0.1032	9.45	0.0057
I-BUTANE	153	0.092	0.0300	2.99	0.0018
N-BUTANE	154	0.083	0.0261	2.71	0.0017
IPENTANE	155	0.038	0.0139	1.52	0.0009
NPENTANE	156	0.025	0.0090	0.99	0.0006
NITROGEN	157	0.370	0.0405	0.00	0.0036
METHANE	158	95.740	16.2280	969.18	0.5303
CO2	159	0.919	0.1567	0.00	0.0140
ETHANE	160	2.292	0.6132	40.66	0.0238
TOTALS		100.000	17.2495	1030.91	0.5846

* @ 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) = 1033.2
REAL RELATIVE DENSITY = 0.5856
UNNORMALIZED TOTAL = 100.05
ANALOG INPUT CHANNEL 1 = H 2 S 140 = 5.5479 E-02
ANALOG INPUT CHANNEL 2 = WATER 144 = 3.6803

ACTIVE ALARMS

NONE

Gas Fuel F Factor & Heating Value Calculation

Client Florida Gas Transmission
Sample ID pipeline natural gas (residue gas)
Time 10:43 EST
Date 2/23/95

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	0.3700	28.016	0.0744	0.00028	0.6148	0	0.00	0.0	0
CO2	0.9190	44.010	0.1170	0.00108	2.4013	0	0.00	0.0	0
CO		28.010	0.0740	0.00000	0.0000	4347	0.00	322.0	0
Methane	95.7400	16.041	0.0424	0.04059	90.6561	23879	21647.77	1013.0	969.846
Ethane	2.2920	30.067	0.0803	0.00184	4.1102	22320	917.41	1792.0	41.0726
Ethylene		28.051	0.0746	0.00000	0.0000	21644	0.00	1614.0	0
Propane	0.3730	44.092	0.1196	0.00045	0.9963	21661	215.80	2590.0	9.6607
propylene		42.077	0.1110	0.00000	0.0000	21041	0.00	2336.0	0
Isobutane	0.0920	58.118	0.1582	0.00015	0.3250	21308	69.26	3363.0	3.09396
n-butane	0.0830	58.118	0.1582	0.00013	0.2932	21257	62.33	3370.0	2.7971
Isobutene		56.102	0.1480	0.00000	0.0000	20840	0.00	3068.0	0
Isopentane	0.0380	72.144	0.1904	0.00007	0.1616	21091	34.08	4008.0	1.52304
n-pentane	0.0250	72.144	0.1904	0.00005	0.1063	21052	22.38	4016.0	1.004
n-hexane	0.0660	86.169	0.2274	0.00015	0.3352	20940	70.19	4762.0	3.14292
H2S		34.076	0.0911	0.00000	0.0000	7100	0.00	647.0	0
total	100.00	Average Density		0.04478	100.0000	Gross Heating Value		Gross Heating Value	
		Specific Gravity		0.58533		Btu/lb	23039	Btu/SCF	1032.1

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	0.37	10.3659			0.61252023	
CO2	44.010	0.272273	0	0.92	40.4452	0.65070485			1.73746
CO	28.010	0.42587	0	0.00	0.0000	0			0
Methane	16.041	0.75	0.25	95.74	1535.7653	68.0610602	22.6870201		
Ethane	30.067	0.8	0.2	2.29	68.9136	3.25767145	0.81441786		
Ethylene	28.051	0.85714	0.14286	0.00	0.0000	0	0		
Propane	44.092	0.81818	0.181818	0.37	16.4463	0.79511523	0.17669249		
Propene	42.077	0.85714	0.14286	0.00	0.0000	0	0		
Isobutane	58.118	0.82759	0.17247	0.09	5.3469	0.26147267	0.05449098		
n-butane	58.118	0.82759	0.17247	0.08	4.8238	0.23589382	0.04916034		
Isobutene	56.102	0.85714	0.14286	0.00	0.0000	0	0		
Isopentane	72.144	0.83333	0.16667	0.04	2.7415	0.13499367	0.02699938		
n-pentane	72.144	0.83333	0.16667	0.03	1.8036	0.08881163	0.01776275		
n-hexane	86.169	0.83721	0.16279	0.07	5.6872	0.2813468	0.05470604		
H2S	34.076	0	0.058692	0.00	0.0000	0	0		
Totals				99.99800	1692.3392	73.7670703	23.88	0.61252023	1.73746

CALCULATED VALUES		
O2 F Factor (dry)	**8680**	DSCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
O2 F Factor (wet)	**10661**	SCF of Exhaust/MM Btu of Fuel Burned @ 0% excess air
Moisture F Factor	**1981**	SCF of Water/MM Btu of Fuel Burned @ 0% excess air
Combust. Moisture	**18.58**	volume % water in flue gas @ 0% excess air
CO2 F Factor	**1026**	DSCF of CO2/MM Btu of Fuel Burned @ 0% excess air
Carbon Dioxide	**11.82**	volume % CO2 in flue gas @ 0% O2
Predicted Fo Factor	**1.77**	EPA Method 3a Fo value
Fuel VOC % (non-C1)	**6.49%**	non-methane fuel VOC content
Fuel VOC % (non-C1,C2)	**2.30%**	non-methane non-ethane fuel VOC content

Testing By Cubix Corporation of Gainesville, Florida

APPENDIX D:
Operational Data

Station 30 Run 30C-1

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1215

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTE "Z"-----	0.976458
BTU/CF	1030.39
CORRECTED BTU	1032.64

GAS COMPRESSOR DATA

SUCTION PRES.	661.0	662.8
DISCHARGE PRES.	691.0	692.5
SUCTION TEMP.	65	65
DISC TEMP OR EFF	89	89
VOLUME (MMCFD)	113.7	113.8
BAROMETRIC PRES	14.9	
cp TO cp OR "k"	1.309	
GRAVITY	0.5844	
ACFM	1692.942682	
HEAD	2098.950621	
EFF	0.225407947	
DISC TEMP	89.00	

ENGINE DATA

HORSE POWER-----	970.08	971.04
AIR INLET TEMP	71	75
AMBIENT TEMP	75	
PCD	66	64.5
FUEL RATE (MMBTU/Hr)	13.554	
NGP % SPEED	99.00	98.9
NPT % SPEED	90.00	89.3
AIR INLET DP	1.00	
FUEL GAS PRESSURE	159	
FUEL FLOW (SCFH)	13.137	12.889
EXHAUST GAS TEMP	887	888

Run30C-1

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1225

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTED "Z"----	0.976458
BTU/CF	1030.39
CORRECTED BTU	1032.64

GAS COMPRESSOR DATA

SUCTION PRES.	659.0
DISCHARGE PRES.	692.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	113.6
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1696.473622
HEAD	2311.8042
EFF	0.248265083
DISC TEMP	89.00

ENGINE DATA

HORSE POWER------	969.23
AIR INLET TEMP	75
AMBIENT TEMP	78
PCD	65
FUEL RATE (MMBTU/Hr)	13.216
NGP % SPEED	99.00
NPT % SPEED	90.00
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.812
EXHAUST GAS TEMP	887

HORSE POWER EVALUATION

Run 30C-1

Unit No. 3003

Date FEB. 23, 1995 Time 1235

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTE "Z"-----	0.976458
BTU/CF	1030.39
CORRECTED BTU	1032.64

GAS COMPRESSOR DATA

SUCTION PRES.	664.0
DISCHARGE PRES.	692.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	113.9
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1688.426468
HEAD	1952.602063
EFF	0.209694378
DISC TEMP	89.00

ENGINE DATA

HORSE POWER-----	971.77
AIR INLET TEMP	76
AMBIENT TEMP	78
PCD	64
FUEL RATE (MMBTU/Hr)	13.287
NGP % SPEED	98.80
NPT % SPEED	88.90
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.879
EXHAUST GAS TEMP	888

Run30C-1

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1245

GAS ANALYSIS

METHANE	95.7400%	
ETHANE	2.2920%	
PROPANE	0.3750%	
IBUTANE	0.0920%	
NBUTANE	0.0830%	
IPENTANE	0.0380%	
NPENTANE	0.0250%	
HEXANE	0.0660%	
HEPTANE	0.0000%	
OCTANE	0.0000%	
NITROGEN	0.3700%	
CO2	0.9190%	
NONANE	0.0000%	
COMP. FACTOR "Z"		0.9978
CORRECTE "Z"-----		0.976458
BTU/CF		1030.39
CORRECTED BTU		1032.64

GAS COMPRESSOR DATA

SUCTION PRES.	661.0
DISCHARGE PRES.	692.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	113.88
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1695.622802
HEAD	2167.727585
EFF	0.232794487
DISC TEMP	89.00

ENGINE DATA

HORSE POWER-------	971.61
AIR INLET TEMP	75
AMBIENT TEMP	80
PCD	64
FUEL RATE (MMBTU/Hr)	13.204
NGP % SPEED	98.70
NPT % SPEED	88.90
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.8
EXHAUST GAS TEMP	889

HORSE POWER EVALUATION

Run30C-1

Unit No. 3003

Date FEB. 23, 1995 Time 1255

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTE "Z"----	0.976458
BTU/CF	1030.39
CORRECTED BTU	1032.64

GAS COMPRESSOR DATA

SUCTION PRES.	666.0
DISCHARGE PRES.	694.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	113.9
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1683.467072
HEAD	1946.930157
EFF	0.209087814
DISC TEMP	89.00

ENGINE DATA

HORSE POWER------	971.76
AIR INLET TEMP	77
AMBIENT TEMP	79
PCD	64
FUEL RATE (MMBTU/Hr)	13.258
NGP % SPEED	98.80
NPT % SPEED	88.80
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.854
EXHAUST GAS TEMP	889

Run30C-1

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 105

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTE "Z"——	0.976458
BTU/CF	1030.39
CORRECTED BTU	1032.64

GAS COMPRESSOR DATA

SUCTION PRES.	666.0
DISCHARGE PRES.	694.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	113.9
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1683.467072
HEAD	1946.930157
EFF	0.209087814
DISC TEMP	89.00

ENGINE DATA

HORSE POWER——	971.76
AIR INLET TEMP	76
AMBIENT TEMP	77
PCD	64
FUEL RATE (MMBTU/Hr)	13.258
NGP % SPEED	98.80
NPT % SPEED	89.10
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.854
EXHAUST GAS TEMP	886

3003- C-2

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 **Time** 1400

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTE "Z"-----	0.976458
BTU/CF	1030.39
CORRECTED BTU	1032.64

	MMBTU/Hr	318.3
	MSCFH	308.5

GAS COMPRESSOR DATA

SUCTION PRES.	670.0 674.1
DISCHARGE PRES.	707.0 711.1
SUCTION TEMP.	65 65
DISC TEMP OR EFF	89 89
VOLUME (MMCFD)	115.5 115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1697.145411
HEAD	2545.474072
EFF	0.273379638
DISC TEMP	89.00

ENGINE DATA

HORSE POWER------	**985.37** 984.78
AIR INLET TEMP	77 75.0
AMBIENT TEMP	78
PCD	64 64.1
FUEL RATE (MMBTU/H	**13.263**
NGP % SPEED	98.80 98.80
NPT % SPEED	88.30 88.26
AIR INLET DP	1.00
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	**12.854** 12876
EXHAUST GAS TEMP	888 887.3

Run 30C-2

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1410

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978		
CORRECTE "Z"-----	0.975807		
BTU/CF	1030.39		
CORRECTED BTU	1032.64		
	MMBTU/Hr	318.9	
	MSCFH	309.2	

GAS COMPRESSOR DATA

SUCTION PRES.	673.0
DISCHARGE PRES.	709.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1688.617335
HEAD	2467.365196
EFF	0.264995025
DISC TEMP	89.00

ENGINE DATA

HORSE POWER------	984.70
AIR INLET TEMP	77
AMBIENT TEMP	78
PCD	64
FUEL RATE (MMBTU/H	13.288
NGP % SPEED	98.80
NPT % SPEED	88.30
AIR INLET DP	1.00
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	12.883
EXHAUST GAS TEMP	888

Run 30C-2

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1420

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978	
CORRECTE "Z"-----	0.975807	
BTU/CF	1030.39	
CORRECTED BTU	1032.64	
	MMBTU/Hr	317.5
	MSCFH	307.8

GAS COMPRESSOR DATA

SUCTION PRES.	676.0
DISCHARGE PRES.	706.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1681.285084
HEAD	2053.925249
EFF	0.220592613
DISC TEMP	89.00

ENGINE DATA

HORSE POWER------	984.69
AIR INLET TEMP	73
AMBIENT TEMP	76
PCD	65
FUEL RATE (MMBTU/H	13.229
NGP % SPEED	98.80
NPT % SPEED	88.40
AIR INLET DP	1.00
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	12.825
EXHAUST GAS TEMP	886

Run 30C-2

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1430

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978		
CORRECTE "Z"-----	0.975807		
BTU/CF	1030.39		
CORRECTED BTU	1032.64		
	MMBTU/Hr	319.7	
	MSCFH	310	

GAS COMPRESSOR DATA

SUCTION PRES.	676.0
DISCHARGE PRES.	708.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1681.285084
HEAD	2188.505927
EFF	0.235047668
DISC TEMP	89.00

ENGINE DATA

HORSE POWER------	984.69
AIR INLET TEMP	74
AMBIENT TEMP	77
PCD	64
FUEL RATE (MMBTU/H	13.321
NGP % SPEED	98.80
NPT % SPEED	88.50
AIR INLET DP	1.00
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	12.917
EXHAUST GAS TEMP	886

Run 3 OC-2

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1440

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978	
CORRECTE "Z"-----	0.975807	
BTU/CF	1030.39	
CORRECTED BTU	1032.64	
	MMBTU/Hr	317.9
	MSCFH	308.2

GAS COMPRESSOR DATA

SUCTION PRES.	673.0
DISCHARGE PRES.	716.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1688.617335
HEAD	2936.148985
EFF	0.315347153
DISC TEMP	89.00

ENGINE DATA

HORSE POWER------	984.68
AIR INLET TEMP	75
AMBIENT TEMP	77
PCD	64
FUEL RATE (MMBTU/H	13.246
NGP % SPEED	98.80
NPT % SPEED	88.20
AIR INLET DP	1.00
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	12.842
EXHAUST GAS TEMP	887

Run 30C-2

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 **Time** 1450

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978	
CORRECTED "Z"----	0.975807	
BTU/CF	1030.39	
CORRECTED BTU	1032.64	
	MMBTU/Hr	319.9
	MSCFH	310.1

GAS COMPRESSOR DATA

SUCTION PRES.	677.0
DISCHARGE PRES.	715.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1678.85513
HEAD	2586.857843
EFF	0.277836268
DISC TEMP	89.00

ENGINE DATA

HORSE POWER------	984.67
AIR INLET TEMP	75
AMBIENT TEMP	77
PCD	64
FUEL RATE (MMBTU/H	13.329
NGP % SPEED	98.80
NPT % SPEED	88.10
AIR INLET DP	1.00
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	12.921
EXHAUST GAS TEMP	888

Run 30C-2

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1500

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978		
CORRECTE "Z"-----	0.975807		
BTU/CF	1030.39		
CORRECTED BTU	1032.64		
	MMBTU/Hr	319.1	
	MSCFH	309.3	

GAS COMPRESSOR DATA

SUCTION PRES.	674.0
DISCHARGE PRES.	717.0
SUCTION TEMP.	65
DISC TEMP OR EFF	89
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1686.166156
HEAD	2931.966523
EFF	0.314899799
DISC TEMP	89.00

ENGINE DATA

HORSE POWER-------	984.68
AIR INLET TEMP	74
AMBIENT TEMP	77
PCD	64
FUEL RATE (MMBTU/H	13.296
NGP % SPEED	98.80
NPT % SPEED	88.00
AIR INLET DP	1.00
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	12.888
EXHAUST GAS TEMP	888

Run 30C-3

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1530

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTE "Z"----	0.975807
BTU/CF	1030.39
CORRECTED BTU	1032.64
MMBTU/Hr	317.3
MSCFH	307.2

GAS COMPRESSOR DATA

SUCTION PRES.	681.0 683.8
DISCHARGE PRES.	718.0 715.7
SUCTION TEMP.	65 65
DISC TEMP OR EFF	88 98
VOLUME (MMCFD)	115.5 115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1669.205151
HEAD	2505.860206
EFF	0.280844417
DISC TEMP	88.00

ENGINE DATA

HORSE POWER------	943.62 143.62
AIR INLET TEMP	76 74.3
AMBIENT TEMP	77
PCD	64 64
FUEL RATE (MMBTU/H	13.221
NGP % SPEED	98.70 98.70
NPT % SPEED	87.99 ~~527.78~~
AIR INLET DP	1.00 87.96
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	12.800 12841
EXHAUST GAS TEMP	886 886

Run 30C-3

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1540

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978		
CORRECTE "Z"-----	0.975807		
BTU/CF	1030.39		
CORRECTED BTU	1032.64		
	MMBTU/Hr	318.9	
	MSCFH	309.3	

GAS COMPRESSOR DATA

SUCTION PRES.	684.0
DISCHARGE PRES.	714.0
SUCTION TEMP.	65
DISC TEMP OR EFF	88
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1662.040156
HEAD	2030.692747
EFF	0.227590563
DISC TEMP	88.00

ENGINE DATA

HORSE POWER------	943.62
AIR INLET TEMP	74
AMBIENT TEMP	77
PCD	64
FUEL RATE (MMBTU/H	13.288
NGP % SPEED	98.70
NPT % SPEED	87.99
AIR INLET DP	1.00
FUEL GAS PRESSURE	160
FUEL FLOW (SCFH)	12.888
EXHAUST GAS TEMP	886

Run 30C-3

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1550

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTE "Z"-----	0.975807
BTU/CF	1030.39
CORRECTED BTU	1032.64

MMBTU/Hr	318.1	
MSCFH	308.4	

GAS COMPRESSOR DATA

SUCTION PRES.	685.0
DISCHARGE PRES.	717.0
SUCTION TEMP.	65
DISC TEMP OR EFF	88
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1659.665473
HEAD	2160.725025
EFF	0.242166397
DISC TEMP	88.00

ENGINE DATA

HORSE POWER------	943.61
AIR INLET TEMP	73
AMBIENT TEMP	77
PCD	64
FUEL RATE (MMBTU/H	13.254
NGP % SPEED	98.70
NPT % SPEED	87.90
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.850
EXHAUST GAS TEMP	886

Run30C-3

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1600

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978
CORRECTE "Z"-----	0.975807
BTU/CF	1030.39
CORRECTED BTU	1032.64

MMBTU/Hr	318.4	
MSCFH	308.7	

GAS COMPRESSOR DATA

SUCTION PRES.	685.0
DISCHARGE PRES.	717.0
SUCTION TEMP.	65
DISC TEMP OR EFF	88
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1659.665473
HEAD	2160.725025
EFF	0.242166397
DISC TEMP	88.00

ENGINE DATA

HORSE POWER-----	943.61
AIR INLET TEMP	73
AMBIENT TEMP	77
PCD	64
FUEL RATE (MMBTU/H	13.267
NGP % SPEED	98.70
NPT % SPEED	88.00
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.863
EXHAUST GAS TEMP	885

Run303

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1610

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978		
CORRECTE "Z"-----	0.975807		
BTU/CF	1030.39		
CORRECTED BTU	1032.64		
	MMBTU/Hr	317.3	
	MSCFH	307.6	

GAS COMPRESSOR DATA

SUCTION PRES.	681.0
DISCHARGE PRES.	716.0
SUCTION TEMP.	65
DISC TEMP OR EFF	88
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1669.205151
HEAD	2372.919574
EFF	0.265943961
DISC TEMP	88.00

ENGINE DATA

HORSE POWER------	943.63
AIR INLET TEMP	76
AMBIENT TEMP	76
PCD	64
FUEL RATE (MMBTU/H	13.221
NGP % SPEED	98.70
NPT % SPEED	87.90
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.817
EXHAUST GAS TEMP	886

Run30C-3

HORSE POWER EVALUATION

Unit No. 3003

Date FEB. 23, 1995 Time 1620

GAS ANALYSIS

METHANE	95.7400%
ETHANE	2.2920%
PROPANE	0.3750%
IBUTANE	0.0920%
NBUTANE	0.0830%
IPENTANE	0.0380%
NPENTANE	0.0250%
HEXANE	0.0660%
HEPTANE	0.0000%
OCTANE	0.0000%
NITROGEN	0.3700%
CO2	0.9190%
NONANE	0.0000%

COMP. FACTOR "Z"	0.9978	
CORRECTED "Z"----	0.975807	
BTU/CF	1030.39	
CORRECTED BTU	1032.64	
	MMBTU/Hr	317.3
	MSCFH	307.8

GAS COMPRESSOR DATA

SUCTION PRES.	687.0
DISCHARGE PRES.	712.0
SUCTION TEMP.	65
DISC TEMP OR EFF	88
VOLUME (MMCFD)	115.5
BAROMETRIC PRES	14.9
cp TO cp OR "k"	1.309
GRAVITY	0.5844
ACFM	1654.936408
HEAD	1689.567257
EFF	0.189360067
DISC TEMP	88.00

ENGINE DATA

HORSE POWER------	943.61
AIR INLET TEMP	74
AMBIENT TEMP	76
PCD	64
FUEL RATE (MMBTU/H	13.221
NGP % SPEED	98.70
NPT % SPEED	88.00
AIR INLET DP	1.00
FUEL GAS PRESSURE	159
FUEL FLOW (SCFH)	12.825
EXHAUST GAS TEMP	886

APPENDIX E:
Quality Assurance Activities

Quality Assurance Worksheet: Florida Gas Transmission Station No. 30

	CERTIFIED GAS INPUT		INITIAL CALIBRATION & LINEARITY CHECK		TEST RUN 30C-1	ZERO and SPAN CALIBRATION CHECK		TEST RUN 30C-2	ZERO and SPAN CALIBRATION CHECK		TEST RUN 30C-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	0.0	2.0	2.0	0.0	40.4	2.4	0.4	40.5	2.0	0.0	40.9	2.3	0.3
low	19.58	21.6	21.0	-0.6	% Chart			% Chart			% Chart		
mid	45.10	47.1	47.2	0.1	42.4	47.4	0.3	42.5	46.8	-0.3	42.9	48.2	1.1
high	90.40	92.4	92.0	-0.4									
full scale	100.0				100.0			100.0			100.0		
CO					Avg. ppm			Avg. ppm			Avg. ppm		
zero	0.0	5.0	5.2	0.2	24.5	5.3	0.3	25.1	5.1	0.1	25.3	5.0	0.0
low	16.90	21.9	21.0	-0.9	% Chart			% Chart			% Chart		
mid	39.77	44.8	44.8	0.0	29.5			30.1			30.3		
high	87.80	92.8	93.3	0.5		92.6	-0.2		92.6	-0.2		92.8	0.0
full scale	100.0				100.0			100.0			100.0		
O2					Avg.%			Avg.%			Avg.%		
zero	0.00	10.0	10.0	0.0	16.70	10.0	0.0	16.74	10.0	0.0	16.74	10.0	0.0
low	3.02	22.1	22.1	0.0	% Chart			% Chart			% Chart		
mid	8.00	42.0	42.0	0.0	76.8			77.0			77.0		
high	18.00	82.0	81.5	-0.5		81.8	-0.2		81.4	-0.6		81.7	-0.3
full scale	25.00				25.0			25.0			25.0		
CO2					Avg.%			Avg.%			Avg.%		
zero	0.00	2.0	2.0	0.0	2.38	2.0	0.0	2.36	2.1	0.1	2.38	2.2	0.2
low	4.00	22.0	20.5	-1.5	% Chart	22.0	0.0	% Chart	21.9	-0.1	% Chart	22.2	0.2
mid	8.00	42.0	40.8	-1.2	13.9			13.8			13.9		
high	18.00	92.0	92.0	0.0									
full scale	20.0				20.0			20.0			20.0		
THC A					Avg. ppm			Avg. ppm			Avg. ppm		
zero	0.0	10.0	10.0	0.0	2.0	9.5	-0.5	1.1	9.0	-1.0	1.1	9.0	-1.0
low†	1.9	13.8	13.7	-0.1	% Chart			% Chart			% Chart		
mid††	16.0	41.8	43.0	1.2	14.0			12.2			12.2		
high	39.8	89.2	89.2	0.0		90.8	1.2		89.0	-0.6		88.9	-0.7
full scale	50.3				50			50			50		

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

†low: 5% is 0.2 percent of chart (scaled to high level)

††mid: 5% is 1.6 percent of chart (scaled to high level)

SOURCE: Unit 3003, Solar Model T-1001S-312F | Unit 3003, Solar Model T-1001S-312F | Unit 3003, Solar Model T-1001S-312F

DATE: 23-Feb-95 | 23-Feb-95 | 23-Feb-95

Testing by Cubix Corporation of Gainesville, Florida

Instrumental Analysis
Quality Assurance Data

Date : February 23, 1995

Plant: FGT's Compressor Station No. 30

Technicians: CDC, LJB

NOx Analyzer: NO2 to NO Converter Efficiency Test

	NOx Concentration (ppm)	% Decrease from Initial Concentration	NO Concentration (ppm)
Initial Concentration	24.4	0.0	na
10 minute Concentration	25.0	-1.1	23.8
20 minute Concentration	25.3	-1.7	23.2
30 minute Concentration	25.4	-1.9	22.6
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 30C-1	45.1	100	45.2	46.1	0.9
NOx, pre 30C-1	0	100	0	2.00	2.0
O2, pre 30C-1	18.00	25.00	18.03	17.75	-1.1
O2, pre 30C-1	0.00	25.00	0	0.00	0.0
NOx, post 30C-3	45.1	100	45.8	45.9	0.1
NOx, post 30C-3	0	100	0.3	0.8	0.5
O2, post 30C-3	18.00	25.00	17.90	17.78	-0.5
O2, post 30C-3	0.00	25.00	-0.05	0.00	0.2

Sample System Leak Check

Date	Run	Initial Vacuum	Final Vacuum
2/23/95	pre 30C-1	26.6 "Hg	26.6 "Hg
2/23/95	post 30C-3	27.5 "Hg	27.5 "Hg

Quality Assurance Report
EPA Method 20 NOx and O2 Response Time

Date 23-Feb-95

Technician: LJB

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

Cubix Mobile Unit #: Trailer #5

Test Instrumentation

Analyzer	Make	Model	Serial Number	Detection Method
NOx Analyzer	TECO	10AR	10AR-014B-80	Chemiluminescence with Ozone
O2 Analyzer	Servomex	1420B	250-2360	Paramagnetic Cell

Test Conditions

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

Response Time Test Data	Response Time (seconds to 95% of stable value)	
	130ft Sample Line w/ 100' Heat Trace	
	NOx	O2
Ambient Gas Concentration	0.60	20.83
Stack Gas Concentration	39.70	15.48
Analyzer Full Scale Range	100	25
Upscale Response		
Test # 1	75	79
Test # 2	76	74
Test # 3	90	77
Average Upscale Response	80.3	76.7
Downscale Response		
Test # 1	77	67
Test # 2	79	68
Test # 3	82	82
Average Downscale Response	79.3	72.3

Minimum System Response Time (seconds): 81

Minimum Sampling Time Each Traverse Point (seconds): 141

Interference Response Test
10 AR -01B-80

Thermo Electron CORPORATION

Richard A. Curran
Regional Sales Manager

Environmental Instruments Division
108 South Street
Hopkinton, Massachusetts 01748
(617) 435-5321

INTERFERENCE RESPONSE TEST

DATE OF TEST JAN 18, 1980

ANALYZER TYPE 10AR RANGE 0-25PPM SERIAL NO. 10AR-014B-80

TEST GAS TYPE	CONCENTRATION PPM	ANALYZER OUTPUT RESPONSE	% OF SPAN
CO	500	< .1 PPM	< .1%
CO_2	201	< .1 PPM	< .1%
CO_2	10%	< .1 PPM	< .1%
O_2	20.9%	< .1 PPM	< .1%

Continous Emission Analyzer Interference Response Tests

Date: 7/8/88
Technician: KRB / MM

Analyzer Type: Thermo Environmental
Analyzer Model: Model 48 Gas Filter Correlation Analyzer
Serial Number: 48-23576-210
Analyzer Test Range: 0-20 ppmv

Test Gas		Analyzer Response		Response Ratio	
Type Gas	Concentration	Concentration PPMv	% of Range		
Air	CO Free	0.0	N/A		
CO_2/O_2	4% / 18%	0.0		0.000	PPMv / %CO
CO_2/O_2	12% / 8%	-0.2		-0.017 / -0.025	
CO_2/O_2	21% / 3%	-0.3		-0.014 / -0.100	
Air	Dry	0.4		CO Impurity?	
NOx	176 ppmv	0.4		0.002	PPMv / PPMv
NOx	3030 ppmv	0.4		0.0001	
SO_2	401 ppmv	-0.2		0.0005	
Propane	240 ppmv	0.4		0.002	

all interferences are negligable

CONTINOUS EMISSION ANALYZER
INTERFERENCE RESPONSE TESTS

Date: 10/23/93
Technicians: HSJ/PDN

Analyzer Type: O_2 [Servomex]
Analyzer Model: 1400 series
Serial Number: 01420/B184
Analyzer Test Range: 0-25 %

Test Gas		Analyzer Response		Response Ratio
Gas Type	Concentration	Concentration	% of Range	
NO_x	797.0	< 0.025 %	0.001	< 0.04
SO_2	1494	"	"	"
CO	4040	"	"	"
C_2	3790	"	"	"

% / %

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 CERTIFICATE OF ANALYSIS.

ALL PRODUCTION & ANALYTICAL PROJECT & CYLINDER SERIAL

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
DAN JACOBSON
9225 LOCKHART HWY

AUSTIN TX 78747

PROJECT #: 04-37277-002
PO#: 94633
ITEM #: 0402C3000714AL
DATE:10/26/94

CYLINDER #: 1L2344

ANALYTICAL ACCURACY: +-2%
PRODUCT EXPIRATION: 10/24/95

BLEND TYPE : CERTIFIED MASTER GAS

COMPONENT	REQUESTED GAS CONC MOLES	ANALYSIS (MOLES)
CARBON DIOXIDE	8. %	8.0 %
OXYGEN	8. %	8.0 %
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: _____

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
DAN JACOBSON
9225 LOCKHART HWY

AUSTIN TX 78747

PROJECT #: 04-37277-001
PO#: 94633
ITEM #: 0402C3000714AL
DATE:10/26/94

CYLINDER #: AAL16990

ANALYTICAL ACCURACY: +-2%
PRODUCT EXPIRATION: 10/25/95

BLEND TYPE : CERTIFIED MASTER GAS

COMPONENT	REQUESTED GAS CONC MOLES		ANALYSIS (MOLES)	
CARBON DIOXIDE	18.	%	18.0	%
OXYGEN	3.	%	3.02	%
NITROGEN		BALANCE		BALANCE

2000 PSI

THIS PRODUCT IS TRACEABLE TO DOCUMENTATION BY BOTH THE NUMBERS IDENTIFIED ON THIS CERTIFICATE OF ANALYSIS.

ALL PRODUCTION & ANALYTICAL PROJECT & CYLINDER SERIAL

ANALYST: D Odell

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
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 : ALM050698 **Certificate Date :** 12/22/94 **Expiration Date :** 6/22/95
Cylinder Pressure + : 1900 psig **Previous Certificate Date :** None

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Methane	1.89 PPM	±1% NIST Directly Traceable
Carbon Monoxide	1.91 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	8/15/96	ALM028108	9.82 ppm PPM Methane In Air
NTRM	12/12/96	ALM022470	10.08ppm PPM Carbon Monoxide In Nitro

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Varian 6000/08963016	12/22/94	Gas Chromotagraphy
Carle/AGC 400 Series	12/21/94	Gas Chromatography

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

Components

Methane

First Triad Analysis	Second Triad Analysis	Calibration Curve
Date: 12/22/94 Response Units: mv		Concentration=A+Bx+Cx²+Dx³+Ex⁴
Z1=0.00 R1=682.00 T1=130.70		r=1.00000 NTRM
R2=680.40 Z2=0.00 T2=130.90		Constants: A=0.006734087
Z3=0.00 T3=130.70 R3=681.10		B=0.014405850 C=0.000000000
Avg. Conc. of Cust. Cyl. 1.89 PPM		D=0.000000000 E=0.000000000

Carbon Monoxide

First Triad Analysis	Second Triad Analysis	Calibration Curve
Date: 12/15/94 Response Units: mv	Date: 12/21/94 Response Units: mv	Concentration=A+Bx+Cx²+Dx³+Ex⁴
Z1=0.00 R1=53.00 T1=10.00	Z1=0.00 R1=53.00 T1=10.00	r=1.00000 NTRM
R2=53.00 Z2=0.00 T2=10.00	R2=53.00 Z2=0.00 T2=10.00	Constants: A=0.007289289
Z3=0.00 T3=10.00 R3=53.00	Z3=0.00 T3=10.00 R3=53.00	B=0.190051200 C=0.000000000
Avg. Conc. of Cust. Cyl. 1.91 PPM	Avg. Conc. of Cust. Cyl: 1.91 PPM	D=0.000000000 E=0.000000000

Special Notes

Customer Service

Rohit Patel

Analyst Rohit Patel

MISP/P-1

AIR PRODUCTS
4822 INDUSTRY LANE
DURHAM, NC 27713

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #: 88-27207 CYLINDER #: SG9119968 CYL. PRESSURE:2000PSIG

EXPIRATION DATE:10/15/96 LAST ANALYSIS DATE:10/15/93

BATCH# 07805

CUSTOMER: AIR PRODUCTS P.O. CUBIX
AUSTIN TEXAS 78735 METHOD: EPA PROTOCOL # 1 3.0.4. G1

STANDARD:

SRM #:2751	1677C	
CYL #:SX20021	FF20046	
CONC.:.97.0PPM	9.98PPM	
VALID DATE:8/20/93	10/17/91	
EXPIR. DATE:8/20/97	10/17/95	

INSTRUMENT:

	BECKMAN	BECKMAN
COMPONENT:THC		NDIR
MODEL #:400		865
SERIAL #:1003052		0103409
LAST CAL.:10/1/93		10/1/93

COMPONENT:	CH4	REPLICATE CONC.	
MEAN CONC:	16.0PPM	DATE: 10/8/93	DATE:
		16.0PPM	
		16.1PPM	
		16.0PPM	

COMPONENT:	CO	REPLICATE CONC.	
MEAN CONC:	16.9PPM	DATE:10/8/93	DATE:10/15/93
		16.8PPM	16.9PPM
		16.7PPM	16.8PPM
		16.9PPM	17.0PPM

COMPONENT:		REPLICATE CONC.	
MEAN CONC:		DATE:	DATE:

BALANCE GAS:AIR

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 CORPORATION
9225 LOCKHART HWY
AUSTIN, TX 78747

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

Purchase Order : 94235
Scott Project # : 565627

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 : AAL15840
Cylinder Pressure + : 1900 psig
Certificate Date : 5/23/94
Previous Certificate Date : None
Expiration Date : 5/23/97

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Methane	**39.80 ppm**	**±1% NIST Directly Traceable**
Carbon Monoxide	**39.77 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
SRM 2631A	6/22/97	ALM-024840	96.21 ppm Carbon Monoxide in Nitrogen

INSTRUMENTATION

Instrument/Model/Serial #	Last Date Calibrated	Analytical Principle
Methane : Beckman/400/1002059	5/4/94	Flame Ionization Detector
CO : Beckman/864/102528	5/3/94	Non-Dispersive Infrared

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

Components

Methane

First Triad Analysis	Second Triad Analysis	Calibration Curve
Date: 5/17/94 Response Units: mv		Concentration=A+Bx+Cx^2+Dx^3+Ex^4
Z1=0.00 R1=130.00 T1=53.40		r=1.00000 SRM 2751
R2=130.00 Z2=0.00 T2=53.40		Constants: A=-0.070954000
Z3=0.00 T3=53.40 R3=130.00		B=0.746700000 C=0.000000000
Avg. Conc. of Cust. Cyl. 39.80 ppm		D=0.000000000 E=0.000000000

Carbon Monoxide

Date: 5/14/94 Response Units: mv	Date: 5/23/94 Response Units: mv	Concentration=A+Bx+Cx^2+Dx^3+Ex^4
Z1=0.00 R1=80.00 T1=33.00	Z1=0.00 R1=80.00 T1=33.20	r=1.00000 SRM 2631A
R2=80.00 Z2=0.00 T2=33.00	R2=80.00 Z2=0.00 T2=33.20	Constants: A=-0.069029000
Z3=0.00 T3=33.00 R3=80.00	Z3=0.00 T3=33.20 R3=80.00	B=1.203500000 C=0.000000000
Avg. Conc. of Cust. Cyl. 39.65 ppm	Avg. Conc. of Cust. Cyl: 39.89 ppm	D=0.000000000 E=0.000000000

Special Notes
AIR BALANCE O2 CONTENT 20 - 21%

Analyst Rhonda Lundy

AIR PRODUCTS
4822 INDUSTRY LANE
DURHAM, NC 27713

CERTIFICATE OF ANALYSIS-EPA PROTOCOL MIXTURES

REFERENCE #: 88-28060 CYLINDER #: SG9120134 CYL. PRESSURE:2000PSIG
EXPIRATION DATE:11/26/96 LAST ANALYSIS DATE:11/26/93
CUSTOMER: CUBIX CORPORATION P.O. 93626
AUSTIN TEXAS 78747
METHOD: ANALYZED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS-SEPTEMBER 1993:G-1

BATCH# 08239

STANDARD:
SRM #:2751 1679C

CYL #:	SX20021	SV14039
CONC.:	97.0PPM	97.1PPM
VALID DATE:	8/20/93	7/1/92
EXPIR. DATE:	8/20/97	7/1/96

INSTRUMENT:

	BECKMAN	BECKMAN
COMPONENT:	THC	NDIR
MODEL #:	440	865
SERIAL #:	1003052	0103409
LAST CAL.:	11/1/93	11/1/93

COMPONENT: CH4
MEAN CONC: 78.6PPM

REPLICATE CONC.

DATE: 11/18/93	DATE:
78.6PPM	
78.6PPM	
78.5PPM	

COMPONENT: CO
MEAN CONC: 87.8PPM

REPLICATE CONC.

DATE:11/18/93	DATE:11/26/93
87.6PPM	88.0PPM
87.5PPM	88.1PPM
87.6PPM	88.1PPM

COMPONENT:
MEAN CONC:

REPLICATE CONC.

DATE:	DATE:

BALANCE GAS:AIR

REPLICATE DATA

COMPONENT:CH4

DATE:		11/18/93				DATE:					
Z	0	R	249.0	C	201.8	Z		R		C	
R	249.0	Z	0	C	201.8	R		Z		C	
Z	0	C	201.5	R	249.0	Z		C		R	

REPLICATE DATA

COMPONENT:CO

DATE:		11/18/93				DATE:11/26/93					
Z	0	R	278.2	C	251.0	Z	0	R	274.2	C	248.5
R	278.2	Z	0	C	250.7	R	274.1	Z	0	C	248.7
Z	0	C	251.0	R	278.2	Z	0	C	248.8	R	274.2

REPLICATE DATA

COMPONENT:

DATE:						DATE:					
Z		R		C		Z		R		C	
R		Z		C		R		Z		C	
Z		C		R		Z		C		R	

Z=ZERO C=CANDIDATE R=REFERENCE

ANALYST: Richard Sykes APPROVED BY: Patrick T. Fletcher

"THIS REPORT STATED ACCURATELY THE RESULTS OF THE INVESTIGATION MADE UPON THE MATERIAL SUBMITTED TO THE ANALYTICAL LABORATORY. EVERY EFFORT HAS BEEN MADE TO DETERMINE OBJECTIVELY, THE INFORMATION REQUESTED; HOWEVER, IN CONNECTION WITH ITS RENDERING OF THIS REPORT, AIR PRODUCTS SHALL HAVE NO LIABILITY IN EXCESS OF ITS ESTABLISHED CHARGE FOR THE SERVICE."

Scott Specialty Gases

a division of
Scott Environmental Technology, Inc.

1290 COMBERMERE STREET, TROY, MICHIGAN 48084 (313) 589-2950

Shipped From : Scott Michigan

Our Project # : 523877

Your P.O. # : 91116

Expiration Date : 11-29-92

Cylinder Number : ALM-015407

Cylinder Pressure 1900 psig

Customer :
CUBIX CORPORATION
9225 LOCKHART
AUSTIN, TX. 78747

*** * * * CERTIFICATE OF ANALYSIS - EPA PROTOCOL GASES * * * ***
PERFORMED ACCORDING TO SECTION 3.0.4

Certified Per Traceability Procedure # G1
Protocol # 1

File # PO-0424

Certified Accuracy 1 % NBS Traceable

ANALYZED CYLINDER		REFERENCE STD			INSTRUMENTATION	
COMPONENT	CERTIFIED CONC.	SRM # (CRM #)	CYLINDER NUMBER	CONC.	INSTR/MODEL/SERIAL #	LAST CALIBRATION
NITRIC OXIDE	19.76 PPM	1683	ALM-010375	47.53 PPM	HORIBA	5-15
		2628A	CAL-10899	9.50 PPM	OPE-235	
					560543082	

BALANCE GAS : NITROGEN

NITROGEN DIOXIDE 0.30 PPM (FROM SECOND ANALYSIS)

FIRST ANALYSIS DATE : 5-21-91

ZERO GAS (mV)	TEST GAS (mV)	RESULTS PPM	REFERENCE GAS CONC.	(mV)	RESULTS PPM
0.00	19.80	19.81	47.53 PPM	47.50	47.53
0.00	19.80	19.81		47.50	47.53
0.00	19.80	19.81		47.50	47.53
CALCULATED RESULTS		19.81			
		19.81			
		19.81			
AVERAGE :		19.81 PPM			

SECOND ANALYSIS DATE : 5-29

ZERO GAS (mV)	TEST GAS (mV)	RESULTS PPM	REFERENCE GAS CONC.	(mV)	RES F
0.00	19.70	19.71	47.53 PPM	47.50	4
0.00	19.70	19.71		47.50	4
0.00	19.70	19.71		47.50	4
0.00	20.00 NOX	20.01			
CALCULATED RESULTS		19.71			
		19.71			
		19.71	20.01 PPM NOX		
AVERAGE :		19.71 PPM			

EPA Protocol #1

Re-Certified

Certified Conc.	19.58
Previous Conc.	19.7
New Assay Conc.	19.46
Expiration Date	10/4/94
Cylinder No.	ALM-015407
Cylinder Press.	960 psi
Type Analysis	TECO 10S/Chemiluminescent
Multipoint Calib.	4/2/93
Reference NBS Cyl.	SX-22124
Reference Cyl. Conc.	43.7
Analyst	[signature]
Analysis Date	4/2/93

2628A	9.50 LOW	9.50	9.50	-0.00

* GMIS - GAS MANUFACTURER'S INTERNAL STANDARD

Analyst : [signature]

Approved By : [signature]

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

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 pressure 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
Nitric Oxide

First Triad Analysis

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		

Second Triad Analysis

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		

Calibration Curve

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

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 : AAL14429
Cylinder Pressure + : 1900 psig
Certificate Date : 12/13/94
Previous Certificate Date : None
Expiration Date : 12/13/96

ANALYZED CYLINDER

Components	Certified Concentration	Analytical Uncertainty*
Nitric Oxide	90.30 ppm	±1% NIST Directly Traceable
Total Oxides of Nitrogen	90.40 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
Nitric Oxide

First Triad Analysis

Date: 12/3/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=90.30
R2=95.20	Z2=0.00	T2=90.30
Z3=0.00	T3=90.30	R3=95.20
Avg. Conc. of Cust. Cyl. 90.30 ppm		

Second Triad Analysis

Date: 12/13/94	Response Units: mv	
Z1=0.00	R1=95.20	T1=90.30
R2=95.20	Z2=0.00	T2=90.30
Z3=0.00	T3=90.30	R3=95.20
Avg. Conc. of Cust. Cyl: 90.30 ppm		

Calibration Curve

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

Pitot Tube Calibration Sheet

Date:	**8/30/94**
Technician:	**SAJ**
Calibration pitot tube	
Type:	std
Size (OD):	1/4"
ID number:	450
Cp (std):	0.99
S-Type pitot tube	
Size (OD):	1/4"
ID Number:	105

A-Side Calibration			
Δp std in H2O	**Δp s in H2O**	**Cp(s)**	**DEV**
0.636	0.937	0.816	0.007
0.643	0.926	0.825	0.002
0.643	0.920	0.828	0.005
0.333	0.481	0.824	0.001
0.330	0.488	0.814	0.008
0.340	0.484	0.830	0.007
0.092	0.133	0.823	0.001
0.089	0.134	0.807	0.016
0.093	0.130	0.837	0.015
	A-Side Averages	**0.823**	**0.007**

B-Side Calibration			
Δp std in H2O	**Δp s in H2O**	**Cp(s)**	**DEV**
0.090	0.131	0.821	0.002
0.090	0.134	0.811	0.011
0.089	0.132	0.813	0.010
0.326	0.464	0.830	0.007
0.324	0.462	0.829	0.007
0.326	0.467	0.827	0.005
0.643	0.930	0.823	0.001
0.640	0.922	0.825	0.002
0.644	0.932	0.823	0.001
	B-Side Averages	**0.822**	**0.005**

Average DEV =	0.0060	must be less ≤ 0.01
Cp(s) from Side A - Cp(s) from Side B =	0.0002	must be less ≤ 0.01

Calibrations Performed by Cubix Corporation, Austin, Texas

Dry Gas Meter Calibration		Date	9/1/94
Austin Laboratory		Technician	SAJ
w/canister		Avg. Flow Rate (ft3/minute)	0.5223
Reference Meter		**Working Meter**	
Manufacturer	American	Manufacturer	Equimeter
Meter No.	P 164240	Meter No.	1695322
Calibration Factor	1.003	Previous Calibration Date	8/15/94
Units of Measure	ft3	Previous Calibration Factor	0.9584
Run 1			
Start Time	8:59		
Stop Time	9:19		
Run Time (minutes)	20	Run Time (minutes)	20
Start Temperature °F	78	Start Temperature °F	80
Stop Temperature (°F)	79	Stop Temperature (°F)	83
Average Temperature (°F)	78.5	Average Temperature (°F)	81.5
Start Meter Reading (ft3)	0.000	Start Meter Reading (ft3)	417.400
Stop Meter Reading (ft3)	10.423	Stop Meter Reading (ft3)	427.905
Net Volume (ft3)	10.454	Net Volume (ft3)	10.505
Meter Rate (ft3/minute)	0.5227	Meter Rate (ft3/minute)	0.5252
Corrected Volume (ft3 @ STP)	10.095	Corrected Volume (ft3 @ STP)	10.088
Calculated Meter Factor	1.0007		
Run 2			
Start Time	9:22		
Stop Time	9:42		
Run Time (minutes)	20	Run Time (minutes)	20
Start Temperature °F	79	Start Temperature °F	87
Stop Temperature (°F)	79	Stop Temperature (°F)	89
Average Temperature (°F)	79	Average Temperature (°F)	88
Start Meter Reading (ft3)	0.000	Start Meter Reading (ft3)	427.905
Stop Meter Reading (ft3)	10.437	Stop Meter Reading (ft3)	438.624
Net Volume (ft3)	10.468	Net Volume (ft3)	10.719
Meter Rate (ft3/minute)	0.5234	Meter Rate (ft3/minute)	0.5359
Corrected Volume (ft3 @ STP)	10.099	Corrected Volume (ft3 @ STP)	10.171
Calculated Meter Factor	0.9929		
Run 3			
Start Time	9:44		
Stop Time	10:04		
Run Time (minutes)	20	Run Time (minutes)	20
Start Temperature °F	79	Start Temperature °F	89
Stop Temperature (°F)	79	Stop Temperature (°F)	91
Average Temperature (°F)	79	Average Temperature (°F)	90
Start Meter Reading (ft3)	0.000	Start Meter Reading (ft3)	438.624
Stop Meter Reading (ft3)	10.383	Stop Meter Reading (ft3)	449.370
Net Volume (ft3)	10.414	Net Volume (ft3)	10.746
Meter Rate (ft3/minute)	0.5207	Meter Rate (ft3/minute)	0.5373
Corrected Volume (ft3 @ STP)	10.047	Corrected Volume (ft3 @ STP)	10.160
Calculated Meter Factor	0.9889		
AVERAGE DGM FACTOR	0.9942		

Cubix Corporation

9225 Lockhart Hwy., Austin, Texas 78747
(512) 243-0202 FAX (512) 243-0222

COMPONENT ALT. Trailer 5

PART NO. 5934P1A83

SERIAL NO. 8E414

MFG. U.T. WORK ORDER # J1223

☒ Overhaul ☐ Repair ☐ Bench Check & Test

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.

Thomas Fuse SEP 13 1991

AUTHORIZED SIGNATURE DATE

Trailer 5

ALTIMETER SCALE ERROR					
PART NO. 5934P1A83		SERIAL NO. 8E414			
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	-15	8,000	-35	30,000	
0 0	+5	10,000	-40	35,000	
500	0	12,000	-30	40,000	
1000	0	14,000	-25	45,000	
1500	-10	16,000	+5	50,000	
2000	-10	18,000	+50	55,000	
3000	-10	20,000	+80	60,000	
4000	-10	22,000		70,000	
6000	-20	25,000		80,000	

BFG/C9102

TEL–TRU MANUFACTURING CO.

408 ST. PAUL STREET ROCHESTER, NY 14605 USA

CERTIFICATE OF CALIBRATION

TEL–TRU ORDER NO.	LINE NUMBER	TICKET NO.	ORDER REC WK NO.	SHIP BY WK NO.
23832	111		43	47

CUSTOMER NUMBER	CUSTOMER P.O. NO.	MANUFACTURING NO.
2-528456000	910537	Stock

QUANTITY	ITEM NUMBER	DESCRIPTION
4	34000260	ET300R 2.5" Stem 25/125F

TOLERANCE OF ±1% OF RANGE:
EX. 0–200°F = ±2°F

THERMOMETERS CALIBRATED AGAINST MASTER PRECISION THERMOMETERS, DIRECTLY TRACEABLE TO NATIONAL BUREAU OF STANDARDS.

TAG NUMBER	CALIBRATING TEMPERATURE										
	−40°F / −40°C	0°F / −17.8°C	50°F / 10°C	100°F / 37.8°C	140°F / 60°C	160°F / 71°C	200°F / 93°C	220°F / 104°C	295°F / 146°C	400°F / 204°C	750°F / 399°C
1			50°F	100°F							
2			50°F	100°F							
3			50°F	100°F							
4			50°F	100°F							

DATE: 10-25-91 TESTED BY: BL CHECKED BY:

Test/Inspection Report
Orifice Meter and Temperature Recorder

☆ Required Entries
Procedure 60.201A

☆ Station Number	☆ Station Name	GMADC
089303	PLANT CITY COMPRESSOR (FUEL)	39035

☆ Company Number: 062
060-TW 012-HPL 179-NNG 018-IGC 062-FGT 028-OPL 014-VPL 000-Other

☆ Date: Month 12 Day 16 94

☒ Test OR ☐ Inspection

Systems: Gas into ___ Gas out of ___

Stat. Inlet Pressure: 552 PSIG

H_2S: ☐ Grain/CSCF ☐ PPM

Water Vapor: #/MMSCF

CO_2: PPM

	Run 1	Run	Run
Run Number	01		
Meter Type	☐ HG ☐ DRI ☒ Elec. #12	☐ HG ☐ DRI ☐ Elec.	☐ HG ☐ DRI ☐ Elec.
Measurement Found in Error ± 1% or Greater	☐ Yes ☒ No	☐ Yes ☐ No	☐ Yes ☐ No
Differential Connection	☐ Pipe OR ☒ Flange	☐ Pipe OR ☐ Flange	☐ Pipe OR ☐ Flange
Static Connection	☐ U/S OR ☒ D/S	☐ U/S OR ☐ D/S	☐ U/S OR ☐ D/S
High Range	2000 PSI 250 "H_2O	PSI "H_2O	PSI "H_2O
Chart Rotation	days OR ☒ Electronic	days OR ☐ Electronic	days OR ☐ Electronic
Diff	Found 0" Left 0"	Found " Left "	Found " Left "

CALIBRATION "AS FOUND"

	Run 1	Run	Run
Diff. W. P. Zero	-0.3"	"	"
Shut in Leak Test	O.K.		
Diff. Pen Arc	☐ OK	☐ OK	☐ OK
Min. Slow			
Min. Fast			

Run 1	Diff. UP STD. "	Diff. UP METER "	Diff. DOWN STD. "	Diff. DOWN METER "
	0	0.0	246	239.9
	50	49.9	190	189.9
	100	99.9	140	139.9
	150	149.9	90	89.9
	200	199.9	40	39.9
	250	249.9	0	0.0

Run	Diff. UP STD. "	Diff. UP METER "	Diff. DOWN STD. "	Diff. DOWN METER "

Run	Diff. UP STD. "	Diff. UP METER "	Diff. DOWN STD. "	Diff. DOWN METER "

STATIC PRESSURE

Run 1	ATMOS. PRESS. 14.73 PSIA	ZERO	W. P.
	Std. (PSIG)	0	550.5
	Recorder ☒ PSIG ☐ PSIA	-1	553

Run	ATMOS. PRESS. ___ PSIA	ZERO	W. P.
	Std. (PSIG)		
	Recorder ☐ PSIG ☐ PSIA		

Run	ATMOS. PRESS. ___ PSIA	ZERO	W. P.
	Std. (PSIG)		
	Recorder ☐ PSIG ☐ PSIA		

ORIFICE PLATE

Run 1	Present Size	Condition
	3" x 0.625"	CLEAN

Run	Present Size	Condition
	" x "	

Run	Present Size	Condition
	" x "	

TEMPERATURE RECORDER "AS FOUND"

Range °F	Spot Test STD.	Spot Test REC.	Span Test STD.	Span Test REC.
0 To 150	83.9 °F	87 °F	0 °F	0 °F
			150 °F	156 °F

Remarks

ADJUSTED STATIC PRESSURE TRANSMITTER
ADJUSTED DIFFERENTIAL PRESSURE TRANSMITTER
CHECKED CALIBRATION OF TEMPERATURE TRANSMITTER - O.K.

WITNESS

TESTER

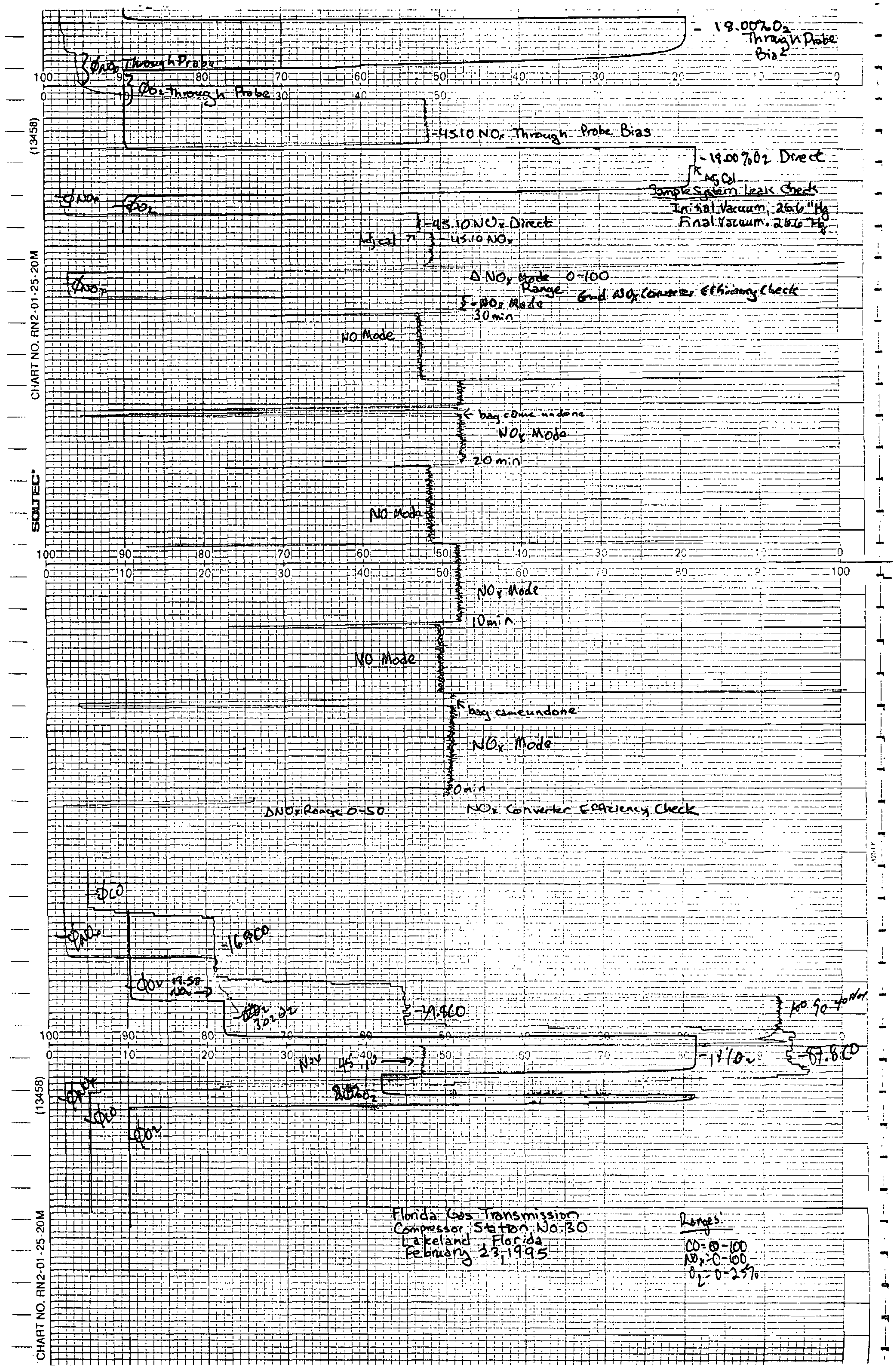
Form 022-2273 (5/91)

Distribution: Original — Gas Measurement/Accounting

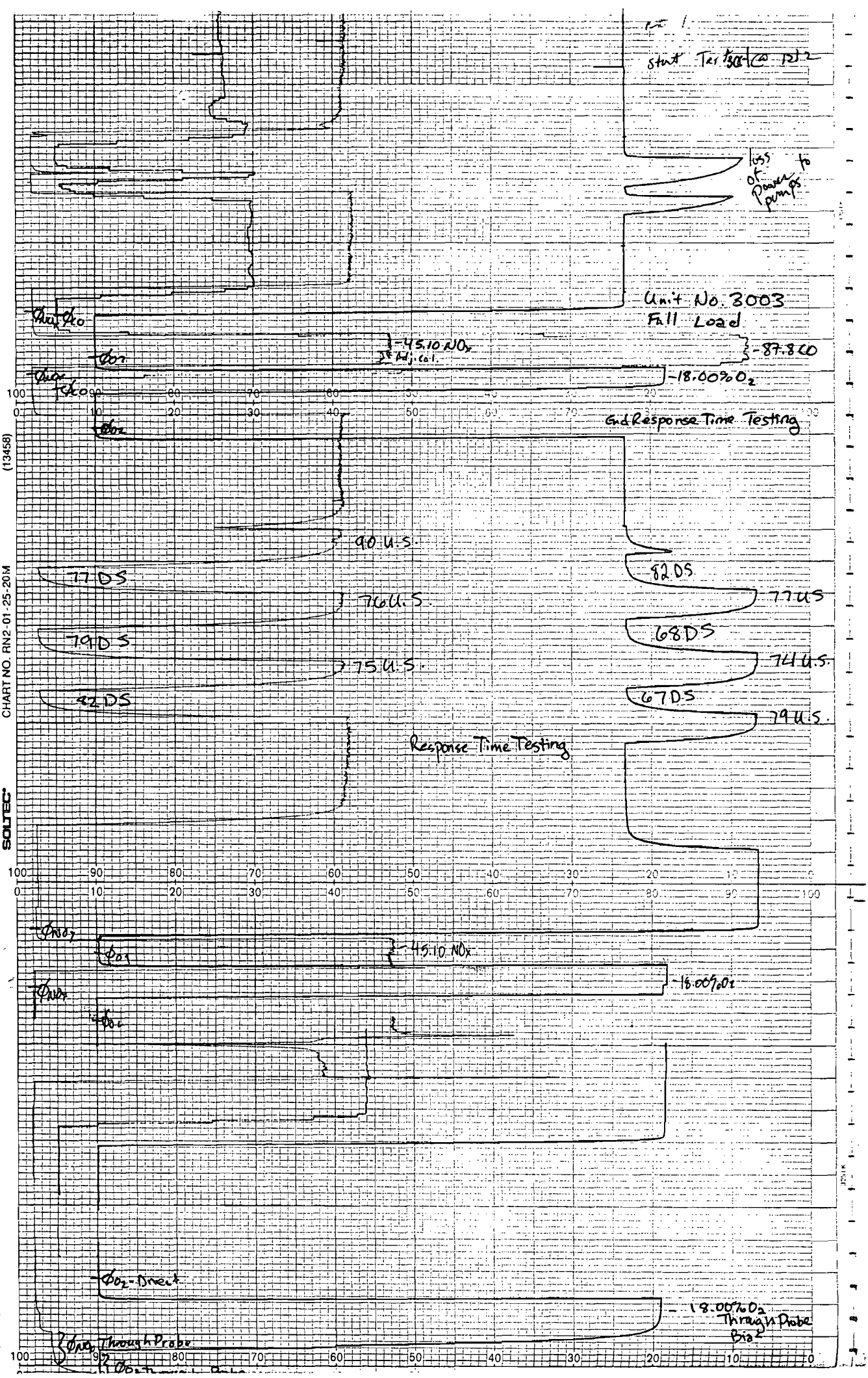
Copies: 1 - District Office 1 - Regional Office 1 - Witness

APPENDIX G:
Strip Chart Records

NOx, CO, O_2



18.00% O2 Through Probe Bias
ΦNOx Through Probe
ΦO2 through Probe
45.10 NOx Through Probe Bias
19.00% O2 Direct
Adj Cal
Sample System Leak Check
Initial Vacuum, 26.6" Hg
Final Vacuum 26.6" Hg
45.10 NOx Direct
Adj cal
45.10 NOx
ΦNOx
ΦO2
Δ NOx Mode 0-100 Range
End NOx Converter Efficiency Check
NOx Mode
30 min
NO Mode
bag came undone
NOx Mode
20 min
NO Mode
NOx Mode
10 min
NO Mode
bag came undone
NOx Mode
0 min
Δ NOx Range 0-50
NOx Converter Efficiency Check
ΦCO
ΦNOx
16.9 CO
ΦO2
30.2 O2
19.8 CO
18.1 O2
87.8 CO
ΦNOx
ΦCO
ΦO2
CHART NO. RN2-01-25-20M
SOLTEC
(13458)
Florida Gas Transmission
Compressor Station No. 30
Lakeland, Florida
February 23, 1995
Ranges:
CO: 0-100
NOx: 0-100
O2: 0-25%



(13458)

CHART NO. RN2-01-25-20M

SOLTEC

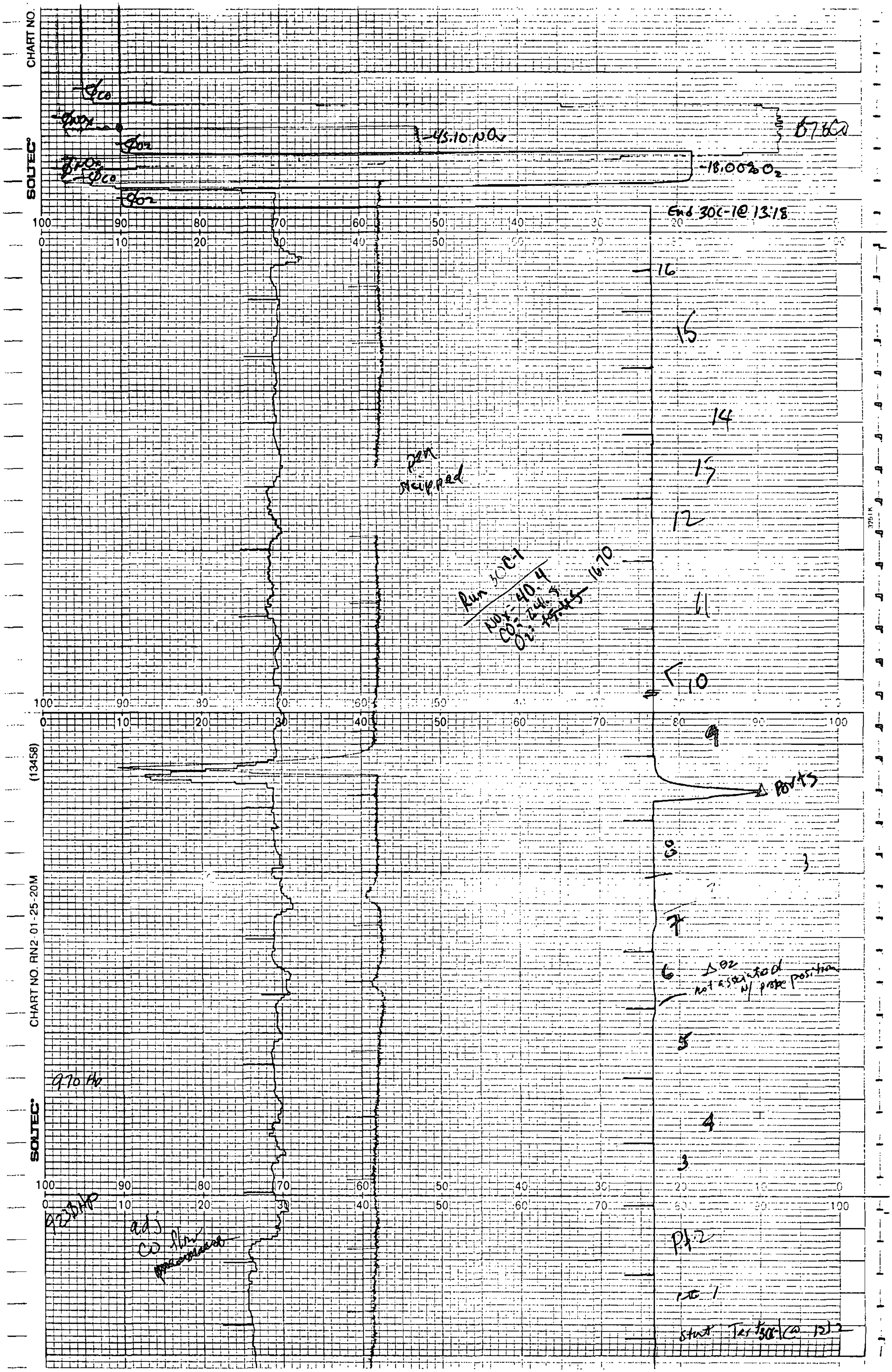


CHART NO.
SOLTEC
-45.10 NOx
-18.00% O2
End 30C-1 @ 13:18
Run 30C-1
NOx: 40.4
CO: Full
O2: 16.70
pen skipped
Ports
Δ O2 not associated w/ probe position
970 hp
923 hp
adj CO flow
start Test 30C @ 12:12
(13458)
CHART NO. RN2-01-25-20M
SOLTEC

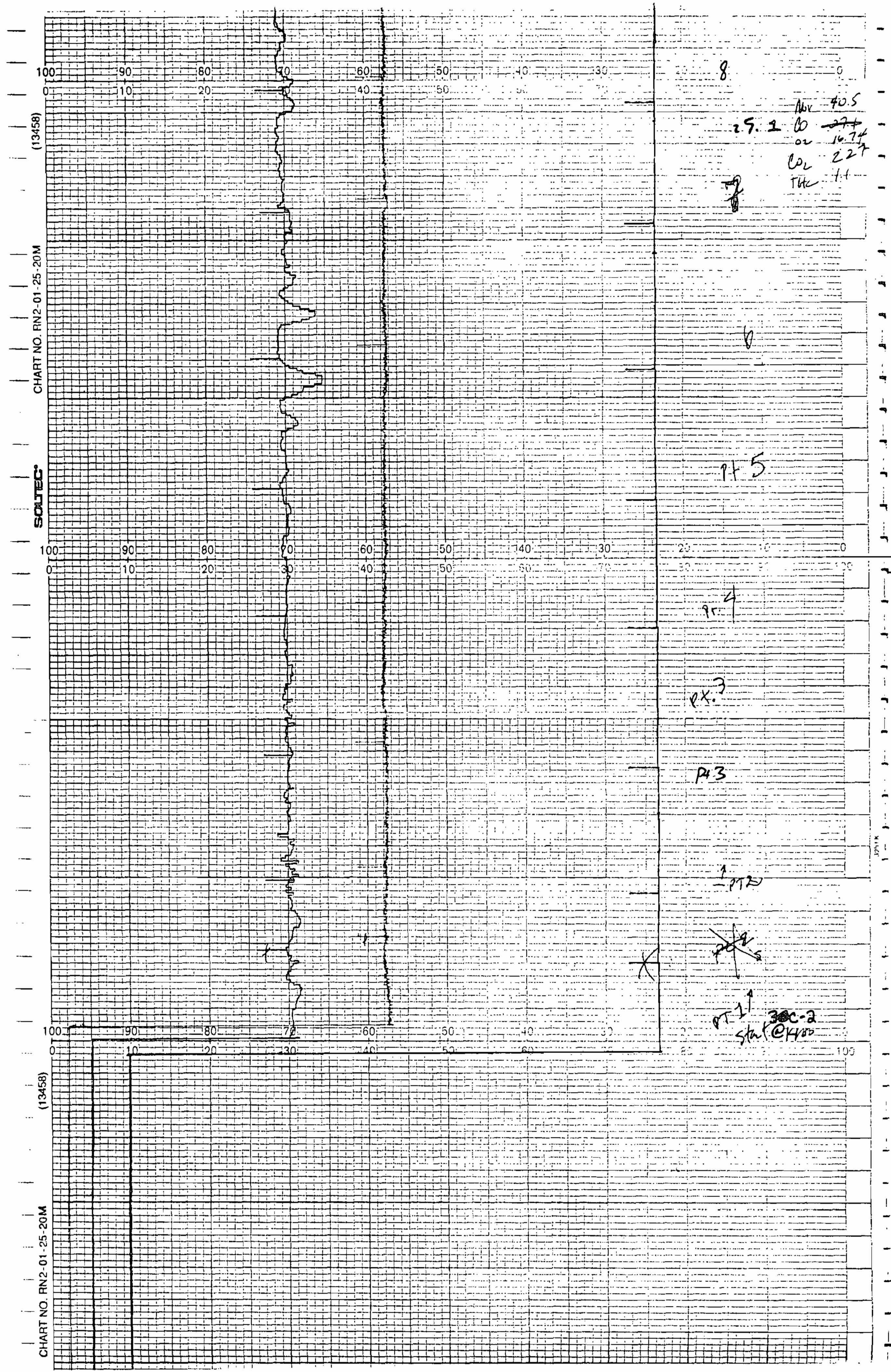
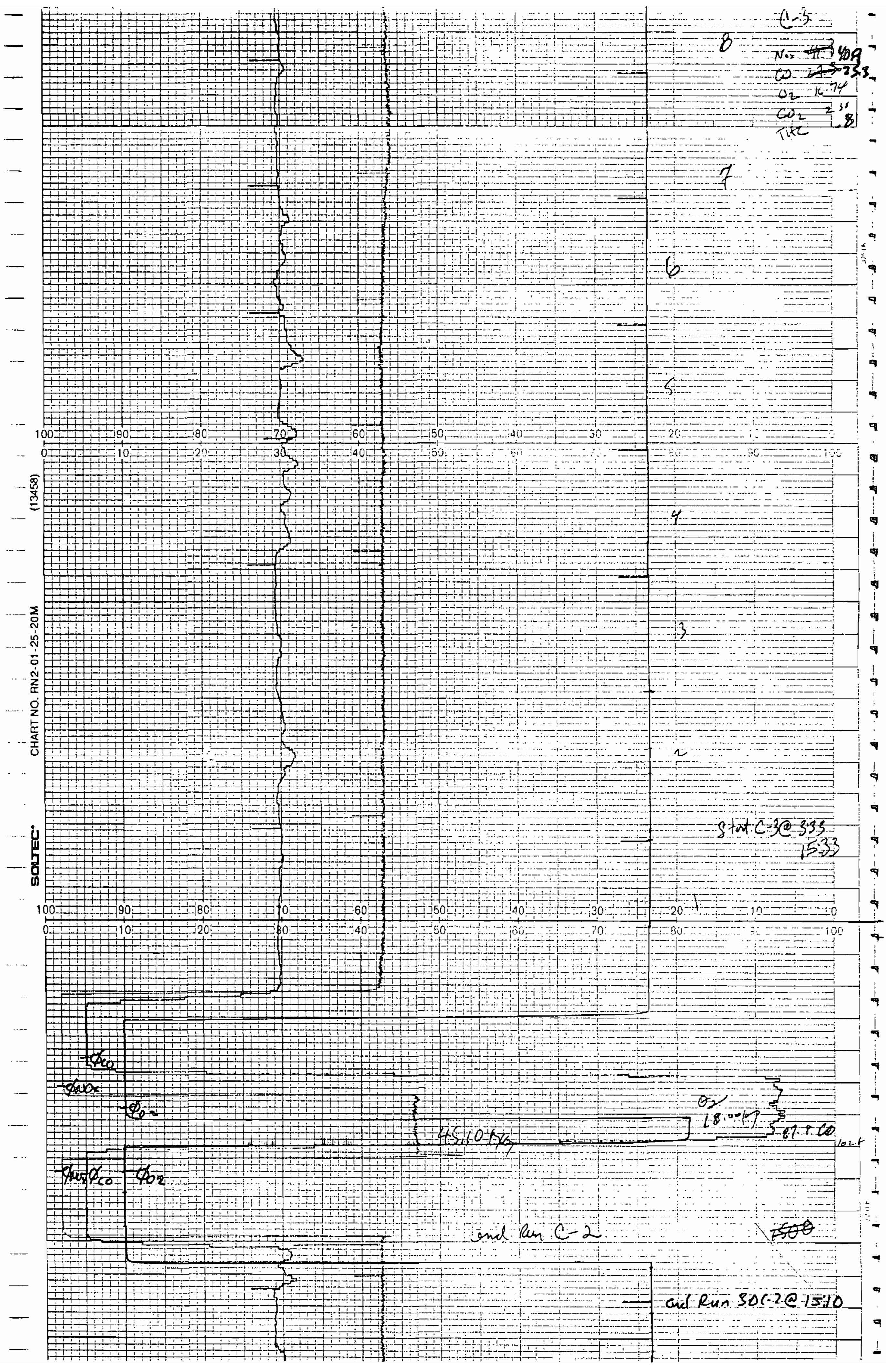
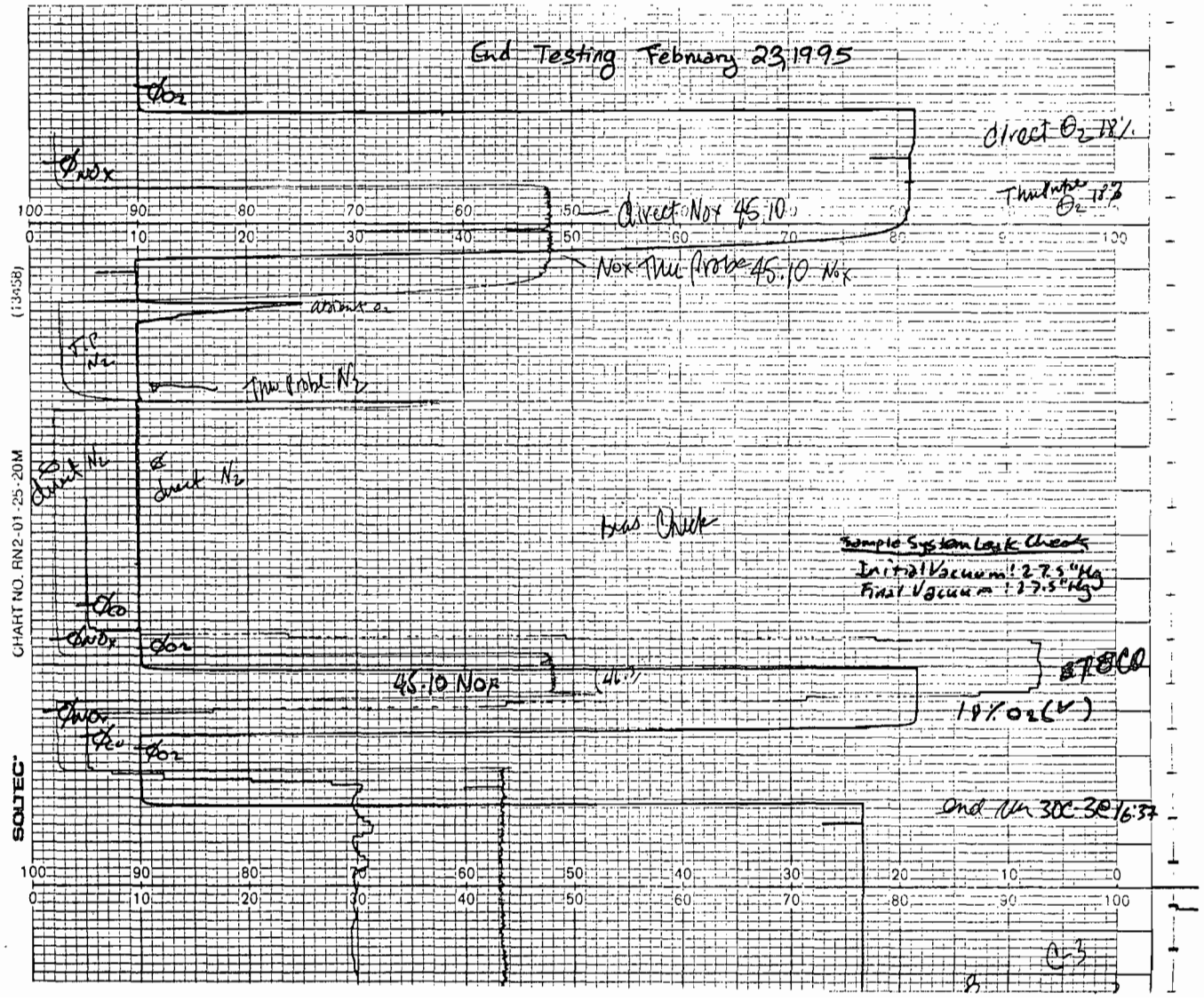
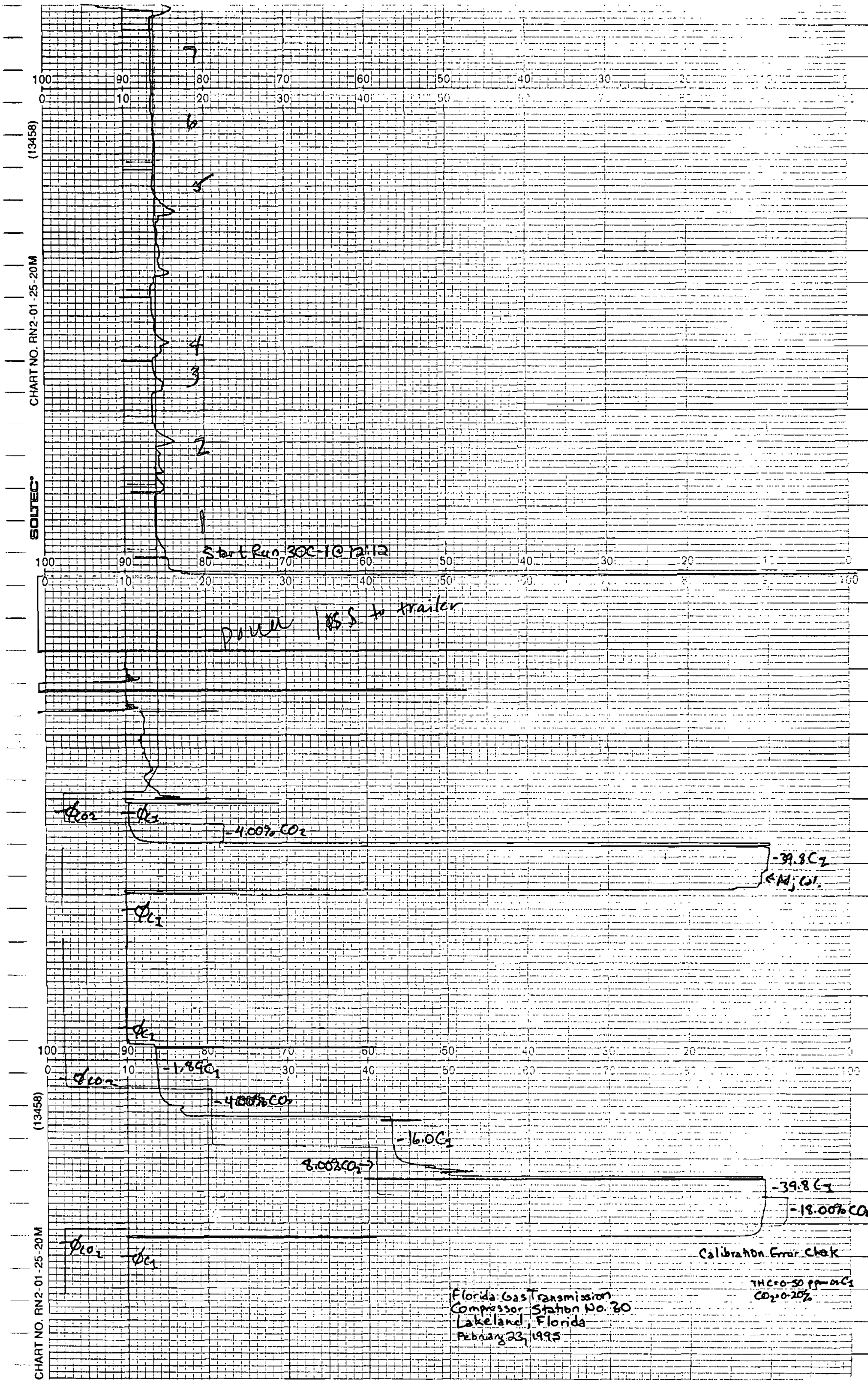


CHART NO. RN2-01-25-20M
(13458)
SOLTEC
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
8
CO2
THC
6
PT 5
P+3
Start @ 1400

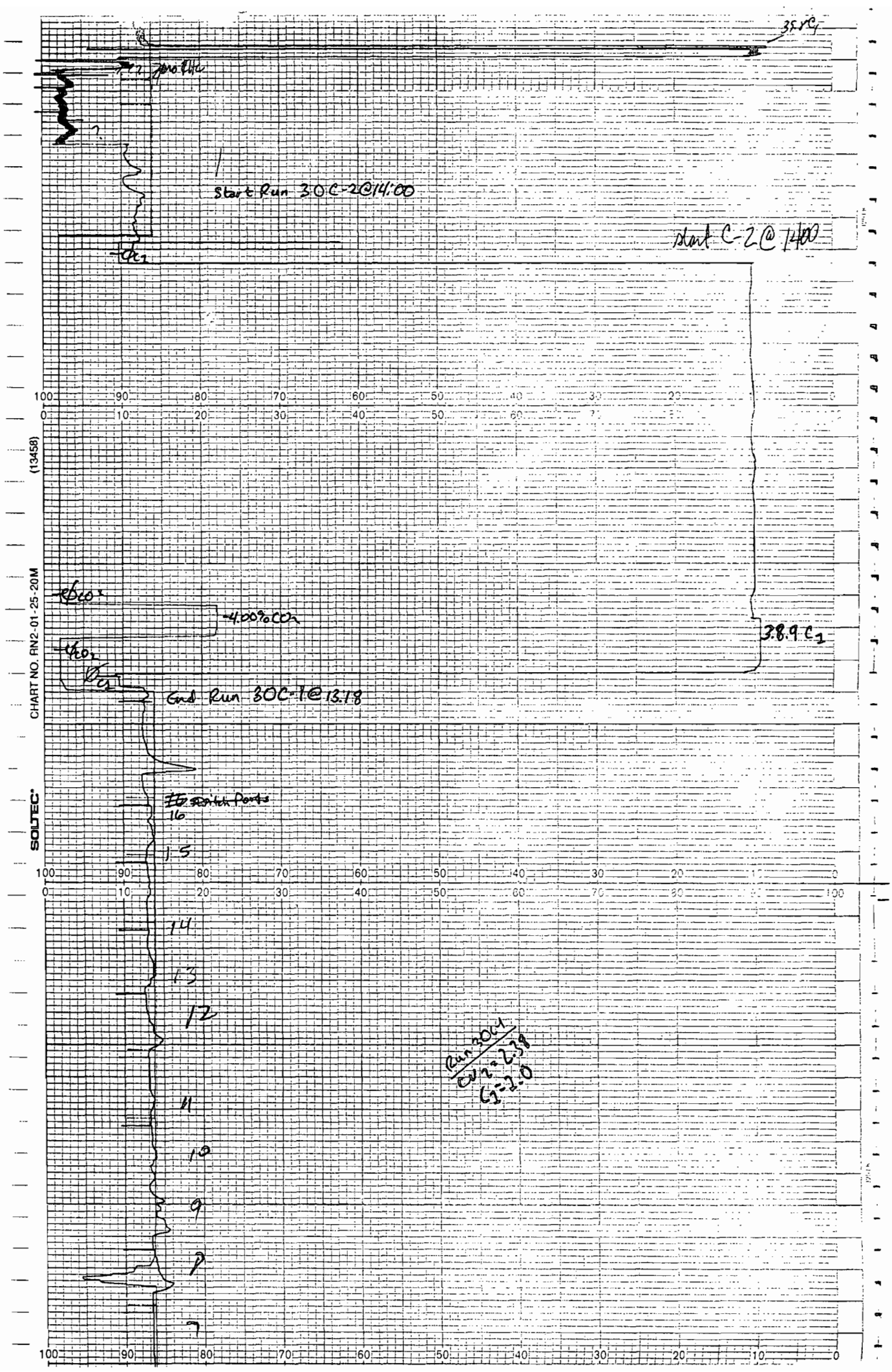

C-3
NOx 409
CO 23.3
O2 14.74
CO2 2.8
THC
8
7
6
5
4
3
2
1
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
(13458)
CHART NO. RN2-01-25-20M
SOLTEC
Start C-3 @ 3:33
15:33
ΦCO
ΦNOx
ΦO2
O2
18.00
87.8 CO
45.0
ΦCO
ΦO2
end Run C-2
end Run 30C-2 @ 15:10


Gnd Testing February 23, 1995
Direct O2 18%
Direct NOx 45.10
NOx True Probe 45.10 NOx
True Probe N2
Leak Check
Sample System Leak Check
Initial Vacuum: 27.5" Hg
Final Vacuum: 27.5" Hg
45.10 NOx
18% O2 (V)
End Run 30C-3P 16:37
CHART NO. RN2-01-25-20M
SOLTEC (13458)

THC, CO_2



SOLTEC
CHART NO. RN2-01-25-20M
(13458)
7
6
5
4
3
2
1
Start Run 30C-1 @ 12:12
Power loss to trailer
-4.00% CO2
-39.8 C1
Adj Cal.
-1.89 C1
-4.00% CO2
-16.0 C1
8.00% CO2
-39.8 C1
-18.00% CO2
Calibration Error Check
THC 0-50 ppm C1
CO2 0-20%
Florida Gas Transmission
Compressor Station No. 30
Lakeland, Florida
February 23, 1995


35 psig
Start Run 30C-2@14:00
Start C-2@1400
100 90 80 70 60 50 40 30 20 10 0
0 10 20 30 40 50 60 70 80 90 100
(13458)
CHART NO. RN2-01-25-20M
4.00% CO2
3.8.9 C1
End Run 30C-1@13.18
SOLTEC
16
15
14
13
12
11
10
9
8
7
Run 30C1
CV2 = 2.38
C1 = 2.0

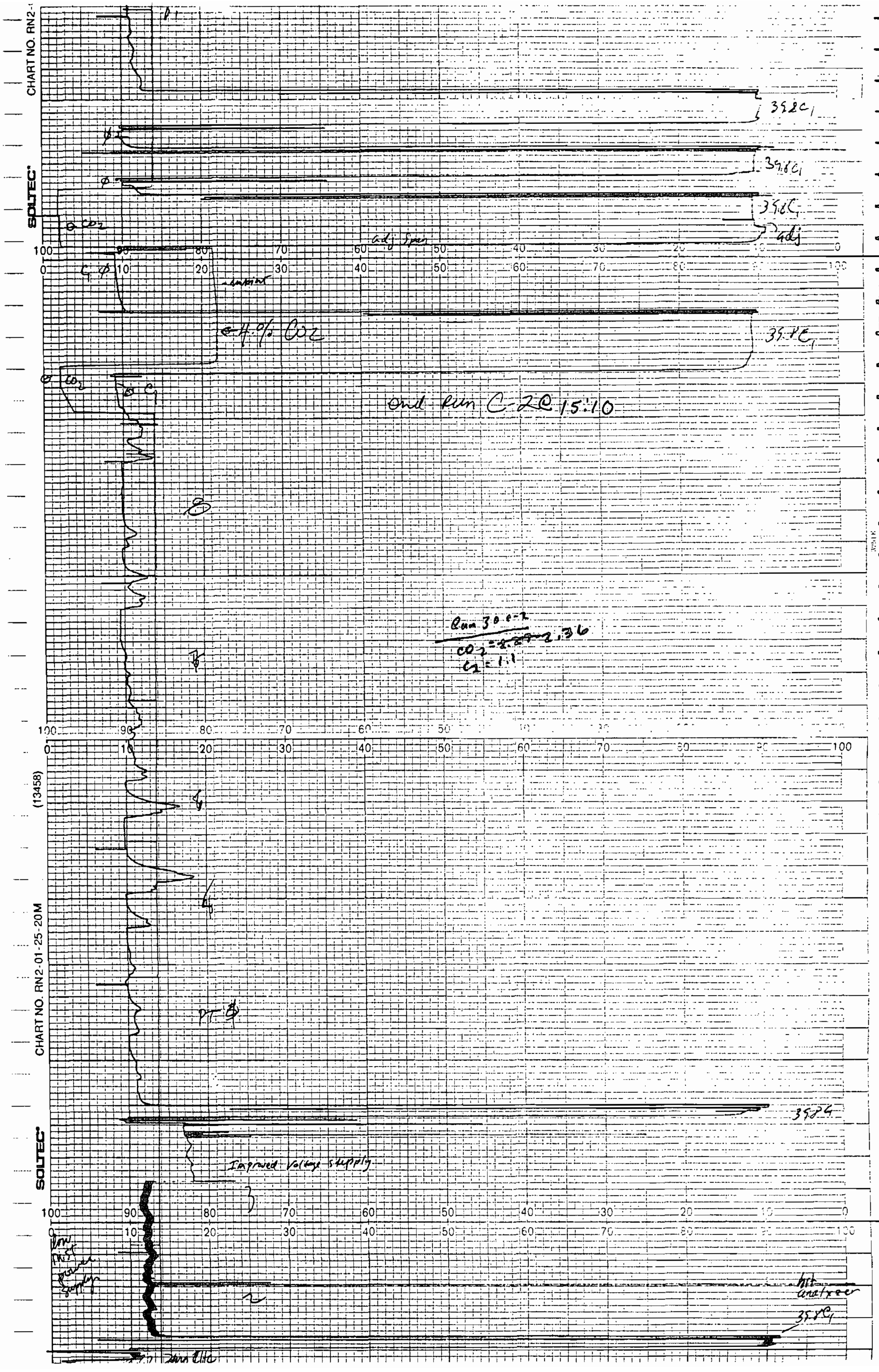
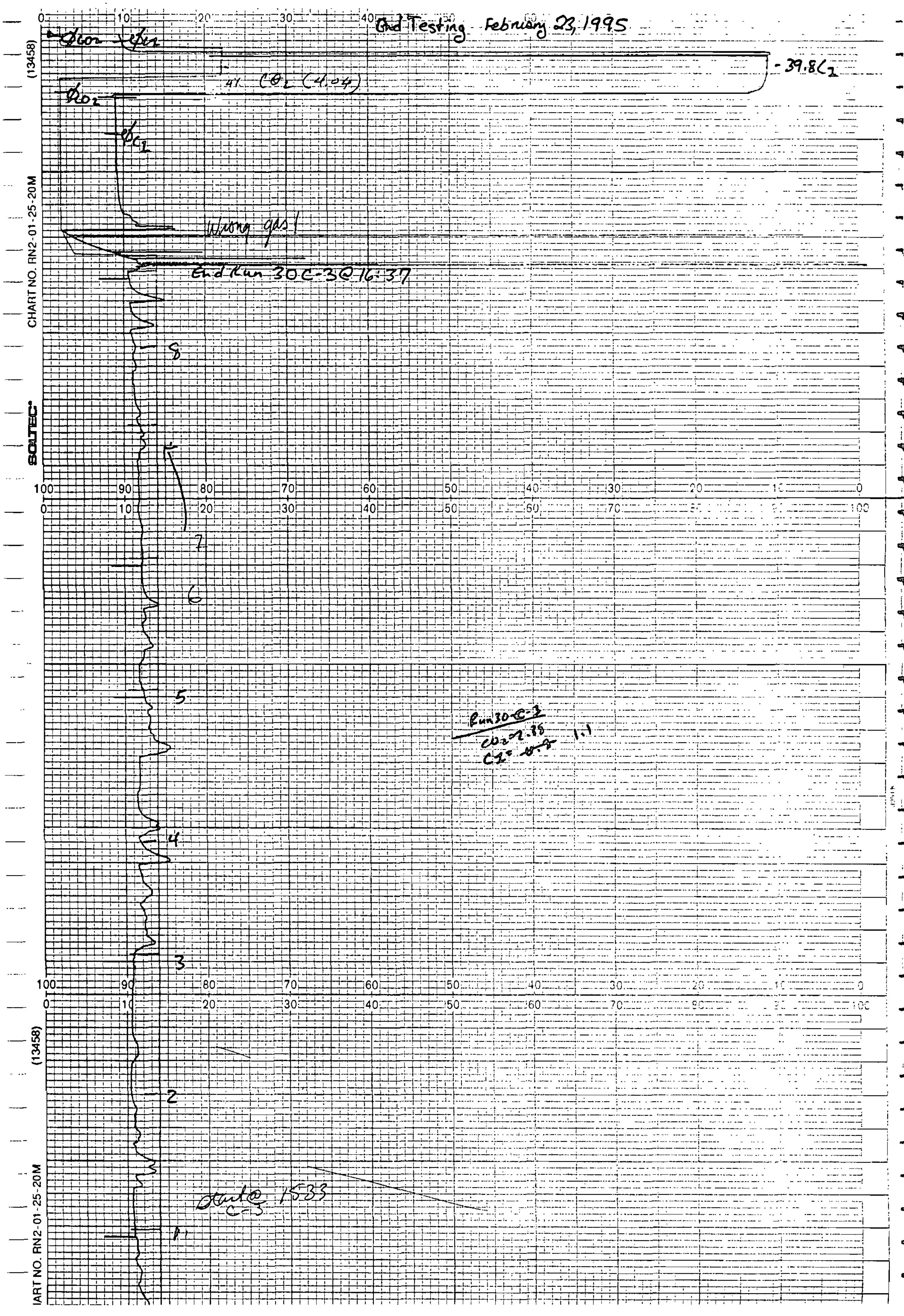


CHART NO. RN2-01-25-20M
SOLTEC
(13458)
4% CO2
end run C-2C 15:10
adj Span
Improved Voltage supply



End Testing February 23, 1995
(13458)
4% CO_2 (4.04)
- 39.8 Cl_2
Wrong gas!
End Run 30C-3 @ 16:37
CHART NO. RN2-01-25-20M
SOLTEC
Run 30-C-3
CO_2 = 2.38
1.1
Start @ 1533
C-3

APPENDIX H
Opacity Observations

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	0 0 0 3 3	Page	1	of	6
Continued on VEO Form Number	0 0 0 3 4				

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

Company Name: Florida Gas Transmission Company

Facility Name: Compressor Station No. 30

Street Address: 2654 Knights-Griffin Road

City: Plant City | State: Florida | Zip: 33565

Process: Gas Compressor Turbine | Unit #: 3003 | Operating Mode: Full Load, 97%

Control Equipment: none | Operating Mode: not applicable

Describe Emission Point: One of 3 Solar Saturn Gas Compresser Turbines, only one w/ tall silencer

Height of Emiss. Pt. Start: ~32.5' End: same

Height of Emiss. Pt. Rel. to Observer Start: ~27.5' End: same

Distance to Emiss. Pt. Start: ~320' End: same

Direction to Emiss. Pt. (Degrees) Start: ~333° End: same

Vertical Angle to Obs. Pt. Start: ~4,9° End: same

Direction to Obs. Pt. (Degrees) Start: ~333° 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: same

Water Droplet Plume: Attached ☐ Detached ☐ None ☒

Describe Plume Background Start: light blue sky w/ puffy clouds End: same

Background Color Start: White End: Blue

Sky Conditions Start: Scattered End: Scattered

Wind Speed Start: ~5 End: ~3-5

Wind Direction Start: SE End: SE

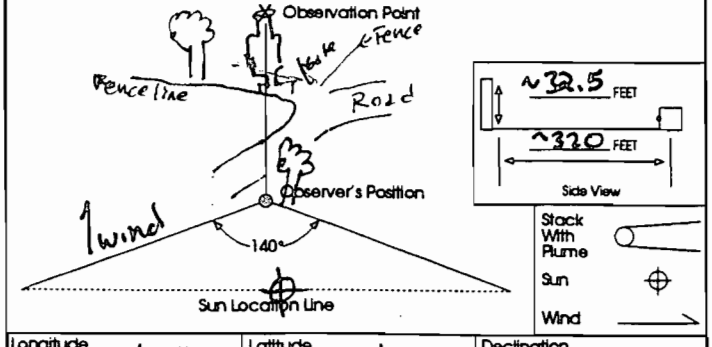
Ambient Temp. Start: 67 End: 68

Wet Bulb Temp.: 61/62

RH Percent:

Source Layout Sketch

Draw North Arrow: ☒ TN ☐ MN



Longitude: 82° 06' 01" W | Latitude: 28° 04' 55" N | Declination: —

Additional Information: Test Run 30C-1, FDEP Permit No. AC 29-228821

Observation Date	Time Zone	Start Time	End Time
Feb 23, 1995	EST	12:05	13:05

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 Br | Date: Feb 23, 1995

Organization: Cubix Corporation

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

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	0 0 0 3 4	Page 2 of 6
Continued on VEO Form Number	0 0 0 3 5	

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)

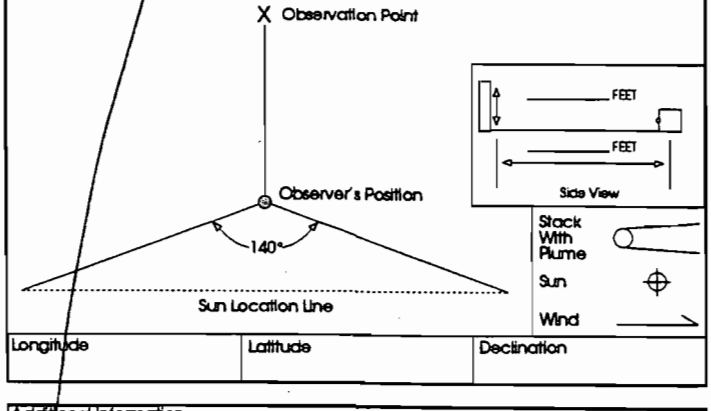
Vertical Angle to Obs. Pt. (Start / End)	Direction to Obs. Pt. (Degrees) (Start / End)
Distance and Direction to Observation Point from Emission Point (Start / End)	

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: Test Run 30C-1 continued

Observation Date	Time Zone	Start Time	End Time
Feb 23, 1995	EST	12:05	13:05

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	
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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: Feb 23, 1995
Organization	Cubix Corporation
Certified By	Eastern Technical Associates — Date: Dec 7, 1994

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	0 0 0 3 5	Page	3 of 6
Continued on VEO Form Number	0 0 0 3 6		

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

Company Name: Florida Gas Transmission
Facility Name: Compressor Station No. 30
Street Address: 2654 Knights-Griffin Road
City: Plant City | State: Florida | Zip: 33565

Process: Gas Compressor Turbine | Unit #: 3003 | Operating Mode: Full Load, 98.5%
Control Equipment: none | Operating Mode: not applicable

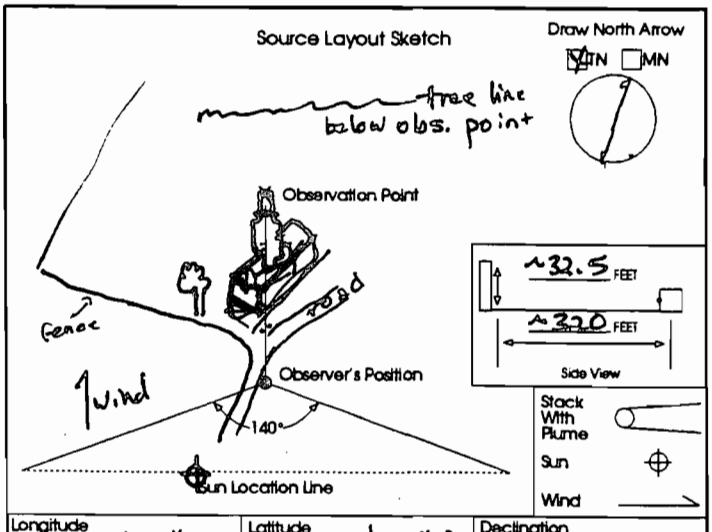
Describe Emission Point: East-Most of 3 gas compressor turbines
tallest stack/silencer red-brown metal stack
Height of Emiss. Pt. Start ~32.5' End same | Height of Emiss. Pt. Rel. to Observer Start ~27.5' End same
Distance to Emiss. Pt. Start ~320' End same | Direction to Emiss. Pt. (Degrees) Start ~333° End same

Vertical Angle to Obs. Pt. Start ~4.9° End same | Direction to Obs. Pt. (Degrees) Start ~333° 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 same | Water Droplet Plume: Attached ☐ Detached ☐ None ☒

Describe Plume Background: Start Puffy white clouds on bright blue sky End same
Background Color: Start White End blue | Sky Conditions: Start Scattered End same
Wind Speed: Start ~3-5 End same | Wind Direction: Start SE End same
Ambient Temp.: Start 68 End 70 | Wet Bulb Temp. 62/62 | RH Percent 72%/64%

Source Layout Sketch



Longitude: 82°06'01"W | Latitude: 28°04'59"N | Declination

Additional Information: Test Run 30C-2, FDEP Permit No. AC 29-228821

Observation Date	Time Zone	Start Time	End Time
Feb 23, 1995	EST	14:00	15:00

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	
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13	0	0	0	0	
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23	0	0	0	0	
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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: Feb 23, 1995
Organization: Cubix Corporation
Certified By: Eastern Technical Association | Date: Dec 7, 1994

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	0	0	0	3	6	Page	4	of	6
Continued on VEO Form Number	0	0	0	3	7				

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

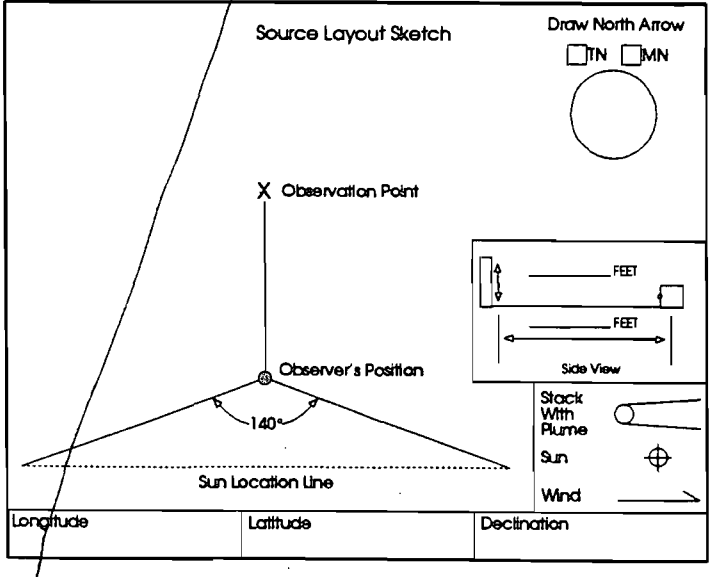
Ambient Temp. — Start / End

Wet Bulb Temp.

RH Percent

Source Layout Sketch

Draw North Arrow ☐TN ☐MN



Longitude | Latitude | Declination

Additional Information: Test Run 30C-2 continued

Observation Date	Time Zone	Start Time	End Time
Feb 23, 1995	EST	14:00	15:00

Min \ Sec	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
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5	0	0	0	0	
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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: Feb 23, 1995

Organization: Cubix Corporation

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

VEOF1.1

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	00037	Page	5 of 6
Continued on VEO Form Number			00038

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

Company Name: Florida Gas Transmission Company
Facility Name: Compressor Station No. 30
Street Address: 2654 Knights-Griffin Road
City: Plant City | State: Florida | Zip: 33565

Process	Unit #	Operating Mode
Gas Compressor Turbine	3003	Full Load 94.4%
Control Equipment: none		Operating Mode: not applicable

Describe Emission Point: East-most & tallest of 3 compressor turbines. Tallest stack, silver red-brown metal

Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start ~32.5' End same	Start ~27.5' End same
Distance to Emiss. Pt.	**Direction to Emiss. Pt. (Degrees)**
Start ~320' End same	Start 333° End same

Vertical Angle to Obs. Pt.	Direction to Obs. Pt. (Degrees)
Start ~49° End same	Start ~333 End same
Distance and Direction to Observation Point from Emission Point	
Start directly above End same	

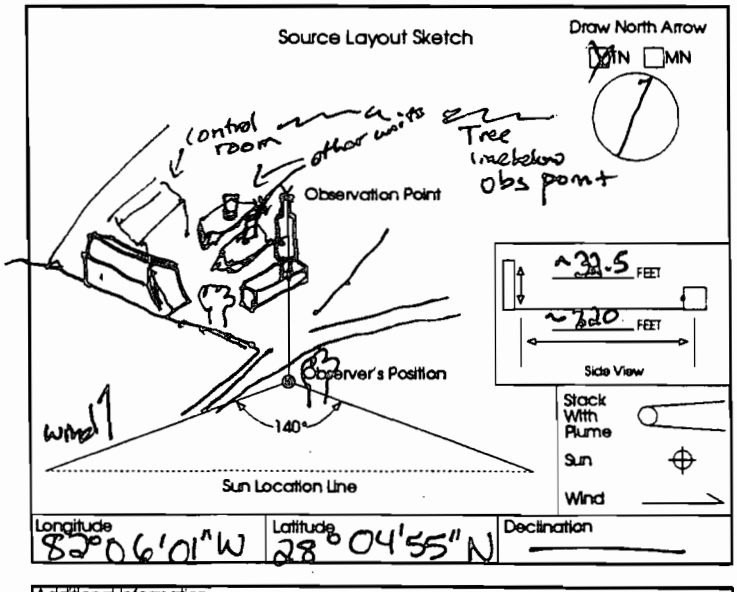
Describe Emissions: Start none End none
Emission Color: Start white End none
Water Droplet Plume: Attached ☐ Detached ☐ None ☑

Describe Plume Background: Start white/gray clouds End white/gray clouds

Background Color	Sky Conditions
Start white End same	Start overcast End overcast
Wind Speed	**Wind Direction**
Start ~3-5 End ~3-5	Start SE End SE

Ambient Temp.	Wet Bulb Temp.	RH Percent
Start 69 End 69	61/61	63%/63%

Source Layout Sketch



Longitude: 82°06'01"W | Latitude: 28°04'55"N | Declination: —

Additional Information: Run 30C-3, FDEP Permit No. AC 29-228821

Observation Date	Time Zone	Start Time	End Time
Feb 23, 1995	EST	15:35	16:35

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	
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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: Feb 23, 1995
Organization: Cubix Corporation
Certified By: Eastern Technical Associates | Date: Dec 7, 1994

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number	00038	Page	6	of	6
Continued on VEO Form Number	not applicable				

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

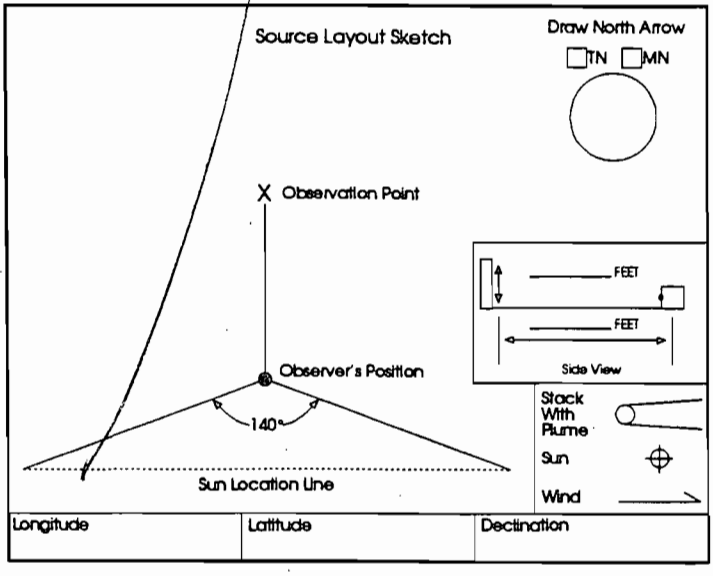
Vertical Angle to Obs. Pt. Start	End	Direction to Obs. Pt. (Degrees) Start	End
Distance and Direction to Observation Point from Emission Point Start		End	

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 30C-3 continued

Observation Date	Time Zone	Start Time	End Time
Feb 23 1995	EST	15:35	16:35

Min \ Sec	0	15	30	45	Comments
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3	0	0	0	0	
4	0	0	0	0	
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6	0	0	0	0	
7	0	0	0	0	
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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 Brenner	Date: Feb 23, 1995
Organization	Cubix Corporation	
Certified By	Eastern Technical Associates	Date: Dec 7, 1994

VISIBLE EMISSIONS EVALUATION

This is to certify that

Leonard L. Kremer

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 16, 1994

Date

LITHO IN U.S.A.

VISIBLE EMISSIONS EVALUATOR

This is to certify that

Ronald [illegible]

met the specifications of Federal Register, Method 9 and qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates of Raleigh, North Carolina. This certificate is valid for six months from date of issue.

[illegible]
President

[illegible]655[illegible]
Certificate Number

[illegible]
Jacksonville

David B. Savage, Jr.
Program Manager

December 7, 1994
Date of Issue

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

CERTIFICATE OFFICER

BEARER'S SIGNATURE

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:

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

DER File No. AC 29-228821
Hillsborough County

Enclosed is Permit Number AC 29-228821 to construct a 1,202 bhp natural gas fired turbine at the Florida Gas Transmission Company's facility located 4 miles NE of the town of Plant City on SR 582, Hillsborough 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
J. Campbell, EPCHC
B. Andrews, P.E., ENSR

COPY FOR:
✓ WRO
✓ CC
✓ Other VDP
Original to

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 29-228821
Expiration Date: June 30, 1995
County: Hillsborough
Latitude/Longitude: 28°04'55"N
82°06'01"W
Project: Natural Gas Turbine
No. 3003) Station No. 30

This 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 and associated support equipment to be located on Griffin Road, 2 miles east of State Highway 36, Plant City, Hillsborough County, Florida. The UTM coordinates are Zone 17, 392.895 km East and 3106.61 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. DEP Form 17-1.202(1) Application to Operate/Construct Air Pollution Sources.
2. Florida Gas Transmission's letter dated April 27, 1993.

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.

GENERAL CONDITIONS:

c. Records of monitoring information shall include:

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

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

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**	3.95	17.3	1.49 g/bhp-hr
Carbon Monoxide	5.88	25.75	2.22 g/bhp-hr
Volatile Organic Compounds (non-methane)	0.25	1.10	0.95 g/bhp-hr
Particulate Matter (TSP)	0.077	0.34	5 lbs/MMscf
Particulate Matter (PM_{10})	0.077	0.34	5 lbs/MMscf
Sulfur Dioxide	0.44	1.94	10 gr S/100scf

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

2. Visible emissions shall not exceed 10% opacity.

Operating Rates

3. This source is allowed to operate continuously (8760 hours per year).

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

SPECIFIC CONDITIONS:

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

- Maximum natural gas consumption shall not exceed 0.0156 MMCF/hr (based on a fuel heating value of 1040 BTU/CF)
- Maximum heat input shall not exceed 15.76 MMBtu/hr

6. Any change in the method of operation, equipment or operating hours shall be submitted to the DEP's Bureau of Air Regulation, Southwest District, and the Environmental Protection Commission in Hillsborough County (EPCHC) 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 Rule 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 Emission from Stationary Sources
- Method 20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Gas Turbines
- Method 18	Measurements of Gaseous Organic Compound Emissions by Gas Chromatography
- Method 25A	Determination of Total Gaseous Nonmethane Organic Emissions 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.

SPECIFIC CONDITIONS:

10. Initial compliance with the total volatile organic compounds will be determined by EPA Method 25A or Method 18. Thereafter, except as provided in Rule 17-297.340(2), compliance with the total 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.

(813) 272-5960
Sterlin Woodard
1410 N. 21st
Tampa
33605

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 Air Section of the Environmental Protection Commission in Hillsborough County (EPCHC) and the Southwest District office shall be notified at least 30 days in writing in advance of the compliance test(s). The source shall operate between 90% and 100% of permitted capacity during the compliance test. Compliance test results shall be submitted to the EPCHC and the Southwest District offices no later than 45 days after completion.

13. Sulfur and nitrogen content and the lower heating value of the fuel being fired in the combustion turbines 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 Environmental Protection Commission of Hillsborough County (EPCHC),

SPECIFIC CONDITIONS:

and the Southwest District offices. 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 demonstrates 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.

15. When the Department, after investigation, has good reason (such as odor complaints, increased visible emissions, excess emissions, etc.), to conclude that any applicable emission standard contained in this permit is being violated, it may require the owner or operator of the facility to conduct compliance tests which identify the nature and quantity of air pollutant emissions from the facility and to provide a report of said tests to the Department (F.A.C. Rule 17-297.340(2)).

Rule Requirements

16. 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. 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.

18. 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. 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 unreasonably 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. 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.

SPECIFIC CONDITIONS:

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, lower heating value of the fuel being fired, fuel usage, turbine inlet and outlet temperature, RPM, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office and the EPCHC 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).

24. An application for an operation permit must be submitted to the EPCHC and the Southwest District offices 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

PATTY

Florida Gas Transmission Company

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

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

John Preston Teresa cPL 579

File

Florida Gas Transmission Company

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

RECEIVED

APR 14 1994

Bureau of
Air Regulation

April 11, 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 29-228821
Florida Gas Transmission Company, Compressor Station No. 30, Hillsborough 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. 30 as authorized under FDEP Permit No. AC 29-228821. Construction began on March 16, 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

J. Cambell, Air Section, Environmental Protection Commission in Hillsborough County, 1410 N. 21st Street, Tampa, Florida 33605

Florida Gas Transmission Company

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

June 13, 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 29-228821
Florida Gas Transmission Company, Compressor Station No. 30, Hillsborough County
Notification of Anticipated Startup

Dear Mr. Fancy:

As required by 40 CFR 60, Florida Gas Transmission Company hereby makes notification of the anticipated startup of the new turbine at Compressor Station No. 30 as authorized under FDEP Permit No. AC 29-228821. Due to an accelerated construction schedule resulting from favorable weather, the startup of this turbine is now anticipated for June 27, 1994.

Notification will be made of actual startup as required.

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

W. Thomas, Florida Department of Environmental Protection, Southwest District, 4520 3804 Coconut Palm Drive, Tampa, Florida 33619-8318

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

Florida Gas Transmission Company

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

August 31, 1993

Ms. Patty Adams
Air Permitting and Standards
Florida Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Intent to Issue Permit
Proof of Publication - Air Permit
Florida Gas Transmission Company
AC 56-189457
Station No. 20 - St. Lucie county, Ft. Pierce, Florida
AC 29-228821
Station No. 30 - Hillsborough County, Plant City, Florida

Dear Ms. Adams:

As discussed with you on the phone earlier today, please find attached copies of two affidavits as proof of public notice publication for the above referenced air permits. As you can see, the originals were sent to the district offices.

Should you have any additional 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: Teresa Heron - FDEP
William Osborne
Allan Weatherford
Files

FILE: FDEP01.LTR

J. Harper, EPA
J. Bunyak, NPS

Florida Gas Transmission Company

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

Certified Mail

August 10, 1993

Dr. Richard Garrity
Florida Department of
Environmental Regulation
4520 Oak Fair Blvd
Tampa, Florida 33610-7347

Dear Dr. Garrity:

RE: Intent to Issue Permit
Proof of Publication - Air Permit
Florida Gas Transmission Company
Station No. 30
Hillsborough County, Plant City, Florida

Attached is one (1) affidavit as proof of publication of the intent to issue notice for the above-referenced site.

Please call me at 407-875-5816 if you have any questions.

Sincerely,

Allan Weatherford, REM
Compliance Environmentalist

bc
aw0810rg
attach

cc: Mike Teal
Duane Pierce

THE TAMPA TRIBUNE

Published Daily
Tampa, Hillsborough County, Florida

State of Florida
County of Hillsborough } ss.

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

LEGAL NOTICE

in the matter of
STATE OF FLORIDA

was published in said newspaper in the issues of
AUGUST 6, 1993

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

R Putney

Sworn to and subscribed before me, this 6 *day of* AUGUST, *A.D. 19* 93

Ina S Kennedy

(SEAL)

INA B. KENNEDY
Notary Public, State of Florida
My comm. expires Mar. 22, 1996
No. CC187731

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 on Griffin Road, 2 miles east of State Highway 39, in Plant City, Hillsborough County, Florida. 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
Hillsborough County Environmental
Protection Commission
1410 North 21st Street
Tampa, Florida 33605
Department of Environmental Protection
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.

3754 8/6/93

Florida Gas Transmission Company

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

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

J. Heron
K. Zhang
G. 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

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

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

April 27, 1993

Mr. John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards
Florida Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Natural Gas Compressor Station No. 30
AC29-228821

Dear Mr. Brown:

This letter is a response to your letter dated 23 April 1993 requesting additional information for an application for a permit to construct a 1202 bhp natural gas compressor engine at Florida Gas Transmission Company Compressor Station No. 30.

The additional information is as follows:

Appendix D: Are the calculations performed based on the low heating value of the fuel and at ISO conditions? If not, please recalculate pollutant emissions using the above mentioned parameters.

Response: The calculations are based upon the lower heating value of the fuel. The manufacturer's rated heat value of 10,923 Btu/bhp-hr at maximum rated load and the emission factors presented in Appendix D are based upon the lower heating value of the fuel.

The emission factors are based upon manufacturer's information presented in Appendix C. Upon recommendation of the manufacturer, the values of these emission factors have been increased according to their tolerance value as presented in Appendix C. For example, the NO_x emission rate for ISO conditions is given as 1.24 g/hp-hr +/- 20% tolerance. The value used for permitting is 1.48 g/hp-hr which is 1.24 g/hp-hr x 1.20. The value for unburned hydrocarbons (UHC) in Appendix C is 0.19 g/hp-hr with 400% tolerance. This converts to 0.95 g/hp-hr of unburned hydrocarbons. The nonmethane hydrocarbon (NMHC) content is assumed to be 10% of this value or 0.095 g/hp-hr.

Page 3-10: What is the correct value of Y (manufacturer's rated heat rate at manufacturer's rated load). Refer to 40 CFR 60, Subpart GG.

Response: The correct value for Y is 14.4 Kj/watt-hour. The calculated value is 15.45 Kj/watt-hour based upon the manufacture's rated heat value of 10,923 Btu/bhp-hr at maximum rated load and using the lower heating value of the fuel as required by 40 CFR 60.332(a). 40 CFR 60.332(a) also states that the value of Y may not exceed 14.4 Kj/watt-hour; therefore the value of 14.4 Kj/watt-hour is used for Y in the equation for modifying the standard.

Should you have any additional questions concerning this application, 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
Florida Gas Transmission Company

cc: Teresa M. Heron - FDER
William Osborne - FGTC
File Phase III CS 30 Air
C. Holladay
B. Thomas, SW Dist.
FILE: PIERCE/CORRES/30FDER01.LTR
J. Kissel, EPCHC

P 360 528 709

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

UNITED STATES POSTAL SERVICE

Sent to	William Osborne
Street and No.	FI 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	4-23-93

AC29-228821

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. William Osborne
Environmental Director
C/A GAS Transmission
PO Box 1188
Houston, TX 77251-1188

4a. Article Number
P 360 528 709

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

7. Date of Delivery

5. Signature (Addressee)
Audrey Babb

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

6. Signature (Agent)

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 Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Virginia B. Wetherell, Secretary

April 23, 1993

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. William Osborne
Environmental Director
Florida Gas Transmission Company
P.O. Box 1188
Houston, Texas 77251-1188

Dear Mr. Osborne:

Re: Natural Gas Compressor Station No. 30
AC29-228821

The Department has reviewed your application for a permit to construct a 1220 bhp natural gas compressor engine. This unit is to be located at the Florida Gas Transmission Company site, 2 miles east of State Highway 39 in Plant City, Hillsborough County, Florida.

Based on this review, we have determined that the following information is needed:

Appendix D: Are the calculations performed based on the low heating value of the fuel and ISO conditions? If not, please recalculate pollutant emissions using the above mentioned parameters.

Page 3-10: What is the correct value of Y (manufacturer's rated heat rate at manufacturer's rated load). Refer to 40 CFR 60, Subpart GG.

We will resume processing your application as soon as this information is received. If you have any questions about the data requested, please feel free to call Teresa M. Heron at (904) 488-1344 or write to me at the above address.

Sincerely,

FOR
John C. Brown, Jr., P.E.
Administrator
Air Permitting and Standards

JCB/TH/plm

cc: Barry Andrews
Duane Pierce

Forgive me, please. I mistakenly omitted the check from the Application we submitted yesterday (overnighted to you) for Florida Gas Transmission Co Compressor Station No. 30.

Pls apply as necessary.

Thank you.

Marcy Babb

CHECK NO.
0622083222

FLORIDA GAS TRANSMISSION COMPANY
P.O. BOX 1188
HOUSTON, TEXAS 77251-1188

DATE OF CHECK
03-19-93

ENRON CORP

This check is VOID unless printed on BLUE background

0594

AMOUNT OF CHECK

EXACTLY $*****2,000 DOLLARS 00 CENTS $*****2,000.00

PAY TO THE ORDER OF
FLORIDA DEPT OF ENVIRONMENTAL REGULATION
2600 BLAIR STONE RD
TWIN TOWERS OFFICE BLDG
TALLAHASSEE, FL
32399-2400

NORWEST BANK GRAND JUNCTION

BY _____ "AUTHORIZED REPRESENTATIVE"

[redacted]

REMITTANCE STATEMENT
CHECK NO. 0622083222 FLORIDA GAS TRANSMISSION COMPANY

VOUCHER NO.	INVOICE DATE	INVOICE NUMBER	PURCHASE ORDER	AMOUNT GROSS	AMOUNT DISCOUNT	AMOUNT NET
9303004138	031993	CKR031993		2,000.00	0.00	2,000.00
FLORIDA PERMIT APPLICATION FEE FOR COMPRESSOR STATION #30, PLANT CITY HILLSBOROUGH COUNTY, FLORIDA						
		AIR PERMIT			TOTAL	2,000.00

Special Instructions
PLEASE CALL MARCY BABB X3295 WHEN CHECK IS READY!!

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

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.7,	0	2	4.9,	11.2,	0	3	4.9,	12.7,	0	4	4.6,	37.8,	0
5	4.6,	18.7,	0	6	4.6,	26.5,	0	7	4.6,	45.4,	0	8	4.6,	43.1,	0
9	4.6,	32.7,	0	10	4.6,	32.6,	0	11	4.6,	35.1,	0	12	4.6,	37.8,	0
13	4.6,	18.7,	0	14	4.6,	26.5,	0	15	4.6,	45.4,	0	16	4.6,	43.1,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE SPEED FOR EACH WIND SPEED CATEGORY ***
(METERS/SEC)

1.50, 2.50, 4.30, 6.80, 9.50, 12.50,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** AVERAGE AMBIENT AIR TEMPERATURE (KELVIN) ***

	STABILITY CATEGORY A	STABILITY CATEGORY B	STABILITY CATEGORY C	STABILITY CATEGORY D	STABILITY CATEGORY E	STABILITY CATEGORY F
ANNUAL	300.6000	300.6000	300.6000	295.4000	290.1000	290.1000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE MIXING LAYER HEIGHT (METERS) ***

ANNUAL

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY A	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000
STABILITY CATEGORY B	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY C	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY D	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY E	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000
STABILITY CATEGORY F	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA84.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1984 YEAR: 1984

ANNUAL: STABILITY CATEGORY A

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00001400	0.00011400	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00015500	0.00022800	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.00043800	0.00045600	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.00025200	0.00102500	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.00025200	0.00102500	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00015500	0.00022800	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00019700	0.00057000	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00002800	0.00022800	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00006900	0.00057000	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00011000	0.00091100	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00025200	0.00102500	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00028300	0.00022800	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00011000	0.00091100	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00014200	0.00011400	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00005500	0.00045600	0.00000000	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY B

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00110900	0.00261900	0.00193600	0.00000000	0.00000000	0.00000000
22.500	0.00054900	0.00193600	0.00091100	0.00000000	0.00000000	0.00000000
45.000	0.00196800	0.00250500	0.00227700	0.00000000	0.00000000	0.00000000
67.500	0.00092200	0.00330200	0.00307400	0.00000000	0.00000000	0.00000000
90.000	0.00173000	0.00535100	0.00375700	0.00000000	0.00000000	0.00000000
112.500	0.00090200	0.00307400	0.00318800	0.00000000	0.00000000	0.00000000
135.000	0.00051900	0.00296000	0.00375700	0.00000000	0.00000000	0.00000000
157.500	0.00101500	0.00159400	0.00261900	0.00000000	0.00000000	0.00000000
180.000	0.00068400	0.00205000	0.00205000	0.00000000	0.00000000	0.00000000
202.500	0.00054900	0.00193600	0.00261900	0.00000000	0.00000000	0.00000000
225.000	0.00049800	0.00273300	0.00307400	0.00000000	0.00000000	0.00000000
247.500	0.00074700	0.00409900	0.00489600	0.00000000	0.00000000	0.00000000
270.000	0.00094300	0.00353000	0.00580700	0.00000000	0.00000000	0.00000000
292.500	0.00033200	0.00091100	0.00091100	0.00000000	0.00000000	0.00000000
315.000	0.00061100	0.00125300	0.00068400	0.00000000	0.00000000	0.00000000
337.500	0.00024900	0.00136700	0.00102500	0.00000000	0.00000000	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA84.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1984 YEAR: 1984

ANNUAL: STABILITY CATEGORY C

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00016500	0.00148000	0.00512300	0.00079700	0.00000000	0.00000000
22.500	0.00007300	0.00227700	0.00353000	0.00068400	0.00000000	0.00000000
45.000	0.00048400	0.00409900	0.00614800	0.00057000	0.00000000	0.00000000
67.500	0.00083100	0.00762800	0.01138500	0.00091100	0.00000000	0.00000000
90.000	0.00101200	0.00592000	0.01411700	0.00250500	0.00000000	0.00000000
112.500	0.00037700	0.00444000	0.00671700	0.00034200	0.00000000	0.00000000
135.000	0.00019800	0.00250500	0.00922200	0.00091100	0.00000000	0.00000000
157.500	0.00015800	0.00125300	0.00364300	0.00034200	0.00000000	0.00000000
180.000	0.00026800	0.00102500	0.00330200	0.00022800	0.00000000	0.00000000
202.500	0.00018000	0.00193600	0.00409900	0.00102500	0.00000000	0.00000000
225.000	0.00016900	0.00159400	0.00432700	0.00068400	0.00000000	0.00000000
247.500	0.00005500	0.00170800	0.00694500	0.00125300	0.00000000	0.00000000
270.000	0.00005500	0.00170800	0.01218200	0.00387100	0.00011400	0.00000000
292.500	0.00014000	0.00068400	0.00307400	0.00079700	0.00000000	0.00000000
315.000	0.00014000	0.00068400	0.00409900	0.00045600	0.00000000	0.00000000
337.500	0.00014300	0.00079700	0.00341600	0.00079700	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY D

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00012100	0.00159400	0.00762800	0.00705900	0.00079700	0.00000000
22.500	0.00015600	0.00205000	0.00580700	0.00785600	0.00034200	0.00000000
45.000	0.00104600	0.00409900	0.01013300	0.00774200	0.00057000	0.00000000
67.500	0.00110300	0.00808300	0.01764600	0.00751400	0.00022800	0.00000000
90.000	0.00119800	0.00933600	0.01969500	0.01024600	0.00011400	0.00000000
112.500	0.00080100	0.00409900	0.00910800	0.00318800	0.00000000	0.00000000
135.000	0.00015600	0.00205000	0.00842500	0.00398500	0.00000000	0.00000000
157.500	0.00007800	0.00102500	0.00284700	0.00216400	0.00000000	0.00000000
180.000	0.00052300	0.00205000	0.00569300	0.00375700	0.00034200	0.00000000
202.500	0.00040100	0.00205000	0.00489600	0.00649000	0.00102500	0.00000000
225.000	0.00015600	0.00205000	0.00501000	0.00159400	0.00022800	0.00000000
247.500	0.00007000	0.00091100	0.00523700	0.00125300	0.00022800	0.00000000
270.000	0.00027000	0.00193600	0.01047400	0.01206800	0.00057000	0.00068400
292.500	0.00033200	0.00113900	0.00626200	0.00956300	0.00136700	0.00068400
315.000	0.00010400	0.00136700	0.00637600	0.00683100	0.00148000	0.00091100
337.500	0.00020900	0.00113900	0.00546500	0.00592000	0.00045600	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA84.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1984 YEAR: 1984

ANNUAL: STABILITY CATEGORY E

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00000000	0.00273300	0.00785600	0.00000000	0.00000000	0.00000000
22.500	0.00000000	0.00250500	0.00546500	0.00000000	0.00000000	0.00000000
45.000	0.00000000	0.00671700	0.00728600	0.00000000	0.00000000	0.00000000
67.500	0.00000000	0.01309200	0.01286500	0.00000000	0.00000000	0.00000000
90.000	0.00000000	0.01445900	0.01218200	0.00000000	0.00000000	0.00000000
112.500	0.00000000	0.00990500	0.00432700	0.00000000	0.00000000	0.00000000
135.000	0.00000000	0.00330200	0.00353000	0.00000000	0.00000000	0.00000000
157.500	0.00000000	0.00182200	0.00136700	0.00000000	0.00000000	0.00000000
180.000	0.00000000	0.00216400	0.00261900	0.00000000	0.00000000	0.00000000
202.500	0.00000000	0.00136700	0.00205000	0.00000000	0.00000000	0.00000000
225.000	0.00000000	0.00205000	0.00159400	0.00000000	0.00000000	0.00000000
247.500	0.00000000	0.00205000	0.00125300	0.00000000	0.00000000	0.00000000
270.000	0.00000000	0.00250500	0.00432700	0.00000000	0.00000000	0.00000000
292.500	0.00000000	0.00409900	0.00432700	0.00000000	0.00000000	0.00000000
315.000	0.00000000	0.00466800	0.00569300	0.00000000	0.00000000	0.00000000
337.500	0.00000000	0.00284700	0.00375700	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY F

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00933800	0.01445900	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00454300	0.00603400	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.01610500	0.01764600	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.02396100	0.02720900	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.02002000	0.02664000	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.01241100	0.01605200	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00497900	0.00637600	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00173700	0.00261900	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00282600	0.00261900	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00209300	0.00444000	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00360600	0.00432700	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00247300	0.00250500	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00447600	0.00330200	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00569600	0.00705900	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00775800	0.01184000	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00378400	0.00523700	0.00000000	0.00000000	0.00000000	0.00000000

SUM OF FREQUENCIES, FTOTAL = 1.00015

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00	391200.00	391300.00	391400.00	391500.00
3107900.00	0.044942	0.043690	0.042073	0.040053	0.037585	0.034633	0.031181	0.027242	0.027267
3107800.00	0.047762	0.047938	0.046480	0.044552	0.042102	0.039073	0.035427	0.031164	0.028359
3107700.00	0.050724	0.050968	0.051415	0.049673	0.047311	0.044259	0.040447	0.035850	0.030513
3107600.00	0.053809	0.054134	0.054659	0.055465	0.053314	0.050323	0.046399	0.041472	0.035550
3107500.00	0.056987	0.057407	0.058020	0.058907	0.060181	0.057411	0.053468	0.048179	0.041468
3107400.00	0.060218	0.060744	0.061453	0.062421	0.063755	0.065620	0.061737	0.055933	0.048497
3107300.00	0.063448	0.064087	0.064895	0.065935	0.067300	0.068939	0.071090	0.065175	0.056971
3107200.00	0.066614	0.067367	0.068270	0.069365	0.070613	0.071672	0.073332	0.075998	0.067130
3107100.00	0.075808	0.073452	0.071497	0.072612	0.073413	0.074038	0.074944	0.076381	0.078915
3107000.00	0.088454	0.087255	0.085280	0.082126	0.076882	0.076064	0.075980	0.075588	0.075194
3106900.00	0.102128	0.102409	0.102095	0.100278	0.096360	0.090409	0.081806	0.074398	0.070237
3106800.00	0.116528	0.118552	0.120286	0.120501	0.118814	0.115035	0.107881	0.095925	0.077930
3106700.00	0.131267	0.135190	0.139200	0.142047	0.143268	0.142767	0.138959	0.129649	0.111586
3106600.00	0.135205	0.139501	0.143928	0.147154	0.148815	0.148782	0.145425	0.136522	0.118687
3106500.00	0.130906	0.134438	0.137952	0.140071	0.140499	0.139141	0.134683	0.125583	0.110198
3106400.00	0.126987	0.129890	0.132669	0.134412	0.134245	0.132591	0.128815	0.117849	0.100052
3106300.00	0.123504	0.125923	0.128184	0.130038	0.129422	0.123872	0.115954	0.104896	0.090766
3106200.00	0.120480	0.122556	0.122786	0.121000	0.117375	0.111653	0.104267	0.095189	0.084695
3106100.00	0.115345	0.114195	0.112496	0.110090	0.106691	0.101189	0.094702	0.087435	0.077673
3106000.00	0.106916	0.105252	0.103073	0.100279	0.096781	0.092295	0.086748	0.079688	0.071312
3105900.00	0.099080	0.097051	0.094567	0.091583	0.088085	0.084137	0.079264	0.072796	0.065515
3105800.00	0.091884	0.089618	0.086974	0.083949	0.080594	0.076756	0.072107	0.066619	0.060200
3105700.00	0.085338	0.082944	0.080251	0.077304	0.074041	0.070161	0.065652	0.060572	0.055078
3105600.00	0.079426	0.076989	0.074345	0.071478	0.068128	0.064278	0.059948	0.055213	0.050230
3105500.00	0.074117	0.071713	0.069136	0.066171	0.062802	0.059033	0.054901	0.050488	0.048413

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391600.00	391700.00	391800.00	391900.00	392000.00	392100.00	392200.00	392300.00	392400.00
3107900.00	0.029145	0.031049	0.032936	0.034754	0.036286	0.037558	0.038669	0.039578	0.040264
3107800.00	0.030405	0.032502	0.034595	0.036625	0.038394	0.039925	0.041269	0.042368	0.043188
3107700.00	0.031737	0.034036	0.036361	0.038634	0.040690	0.042557	0.044206	0.045554	0.045703
3107600.00	0.033096	0.035467	0.037951	0.040485	0.042865	0.045166	0.047336	0.049177	0.047571
3107500.00	0.034278	0.036663	0.039269	0.042038	0.044796	0.047673	0.050484	0.052627	0.049077
3107400.00	0.039684	0.037663	0.040249	0.043208	0.046385	0.050017	0.053742	0.053771	0.050069
3107300.00	0.046738	0.038319	0.040539	0.043532	0.047121	0.051768	0.056869	0.054158	0.050605
3107200.00	0.055110	0.041309	0.039622	0.042230	0.046129	0.052183	0.056362	0.053584	0.050777
3107100.00	0.064889	0.047488	0.036792	0.037976	0.041926	0.050111	0.052707	0.052328	0.051685
3107000.00	0.075559	0.053370	0.032098	0.029493	0.033490	0.043094	0.047401	0.052095	0.058222
3106900.00	0.064233	0.057809	0.026364	0.014875	0.021183	0.030330	0.043200	0.057301	0.066876
3106800.00	0.055526	0.034338	0.018906	0.004948	0.016502	0.016439	0.040781	0.066458	0.081347
3106700.00	0.081897	0.039610	0.014319	0.005849	0.006856	0.025566	0.053865	0.085349	0.106033
3106600.00	0.088824	0.044941	0.019976	0.005423	0.017133	0.026623	0.046715	0.073450	0.096113
3106500.00	0.085789	0.045538	0.020393	0.012318	0.012506	0.024381	0.031412	0.042493	0.062072
3106400.00	0.076709	0.052575	0.027017	0.022556	0.022156	0.025609	0.036794	0.045331	0.053141
3106300.00	0.074551	0.053327	0.035755	0.039375	0.037897	0.033514	0.041049	0.051249	0.054752
3106200.00	0.070255	0.054825	0.047656	0.052933	0.050866	0.043072	0.044632	0.050910	0.057084
3106100.00	0.066266	0.054962	0.055692	0.061527	0.059174	0.050169	0.046180	0.050050	0.054297
3106000.00	0.062183	0.056390	0.060033	0.065672	0.063311	0.054388	0.047345	0.048524	0.051521
3105900.00	0.057946	0.057743	0.061769	0.066925	0.064704	0.056414	0.049232	0.046496	0.048763
3105800.00	0.054631	0.057920	0.061886	0.066498	0.064474	0.056982	0.050154	0.044243	0.046063
3105700.00	0.053975	0.057370	0.061120	0.065240	0.063417	0.056700	0.050384	0.044589	0.043248
3105600.00	0.052698	0.056039	0.059588	0.063252	0.061628	0.055639	0.049819	0.044355	0.040456
3105500.00	0.051324	0.054424	0.057653	0.060933	0.059488	0.054149	0.048906	0.043910	0.039275

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392500.00	392600.00	392700.00	392800.00	392900.00	393000.00	393100.00
3107900.00	0.039701	0.037586	0.035582	0.033705	0.031963	0.030360	0.028893
3107800.00	0.041291	0.038909	0.036669	0.034588	0.032674	0.030926	0.029445
3107700.00	0.042874	0.040201	0.037711	0.035417	0.033326	0.031570	0.030927
3107600.00	0.044399	0.041424	0.038678	0.036171	0.034085	0.033434	0.032596
3107500.00	0.045762	0.042534	0.039546	0.037076	0.036451	0.035553	0.034472
3107400.00	0.046614	0.043428	0.040624	0.040099	0.039165	0.037952	0.036569
3107300.00	0.047227	0.044439	0.044437	0.043609	0.042267	0.040652	0.038899
3107200.00	0.048313	0.049051	0.048743	0.047640	0.045785	0.043668	0.041467
3107100.00	0.054060	0.054664	0.053857	0.052126	0.049734	0.047004	0.046458
3107000.00	0.061249	0.061487	0.059887	0.058173	0.058347	0.057527	0.056165
3106900.00	0.070329	0.072395	0.073687	0.073323	0.071810	0.069328	0.066399
3106800.00	0.089919	0.092974	0.092410	0.089745	0.086011	0.081553	0.076875
3106700.00	0.114960	0.115755	0.112209	0.106653	0.100388	0.093741	0.087251
3106600.00	0.107582	0.110472	0.108483	0.104040	0.098572	0.092510	0.086417
3106500.00	0.076775	0.084456	0.087113	0.086646	0.084413	0.080957	0.076944
3106400.00	0.057842	0.062370	0.067973	0.070535	0.071001	0.069749	0.067666
3106300.00	0.057133	0.058034	0.057697	0.056572	0.058724	0.059270	0.058860
3106200.00	0.057472	0.057266	0.056477	0.055227	0.053407	0.051287	0.050734
3106100.00	0.057900	0.056902	0.055700	0.054283	0.052272	0.050282	0.048358
3106000.00	0.054315	0.056604	0.055138	0.053258	0.051329	0.049445	0.047630
3105900.00	0.051023	0.053014	0.054232	0.052364	0.050520	0.048734	0.047016
3105800.00	0.047958	0.049414	0.050608	0.051538	0.049810	0.048117	0.046489
3105700.00	0.044735	0.046116	0.047323	0.048334	0.049150	0.047572	0.046029
3105600.00	0.041826	0.043144	0.044348	0.045407	0.046310	0.047061	0.045622
3105500.00	0.039207	0.040466	0.041653	0.042735	0.043694	0.044526	0.045234

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 10 ANNUAL AVERAGE CONCENTRATION VALUES FOR GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

RANK	CONC	AT	RECEPTOR (XR,YR) OF TYPE		RANK	CONC	AT	RECEPTOR (XR,YR) OF TYPE	
1.	0.148815	AT (	391100.00, 3106600.00)	GC	6.	0.143268	AT (	391100.00, 3106700.00)	GC
2.	0.148782	AT (	391200.00, 3106600.00)	GC	7.	0.142767	AT (	391200.00, 3106700.00)	GC
3.	0.147154	AT (	391000.00, 3106600.00)	GC	8.	0.142047	AT (	391000.00, 3106700.00)	GC
4.	0.145425	AT (	391300.00, 3106600.00)	GC	9.	0.140499	AT (	391100.00, 3106500.00)	GC
5.	0.143928	AT (	390900.00, 3106600.00)	GC	10.	0.140071	AT (	391000.00, 3106500.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 0 Informational Message(s)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCLT2 Finishes Successfully ***
****

ISC MODEL RESULTS
NO_x - ANNUAL
100 METER GRID
YEAR: 1985

```
NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
```

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Default Wind Profile Exponents.
5. Default Vertical Potential Temperature Gradients.
6. "Upper Bound" Values For Supersquat Buildings.
7. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 STAR Average(s) for the Following Months: 0 0 0 0 0 0 0 0 0 0 0 0
Seasons/Quarters: 0 0 0 0
and Annual: 1

**Model Assumes 1 STAR Summaries In Data File for the Averaging Periods Identified Above

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Long Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Maximum Long Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of Long Term Values for Plotting (PLOTFILE Keyword)

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: st30n85.ann ; **Output Print File: st30n85.out
**Error Message File: st30n83a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.44000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.7,	0	2	4.9,	11.2,	0	3	4.9,	12.7,	0	4	4.6,	37.8,	0
5	4.6,	18.7,	0	6	4.6,	26.5,	0	7	4.6,	45.4,	0	8	4.6,	43.1,	0
9	4.6,	32.7,	0	10	4.6,	32.6,	0	11	4.6,	35.1,	0	12	4.6,	37.8,	0
13	4.6,	18.7,	0	14	4.6,	26.5,	0	15	4.6,	45.4,	0	16	4.6,	43.1,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE SPEED FOR EACH WIND SPEED CATEGORY ***
(METERS/SEC)

1.50, 2.50, 4.30, 6.80, 9.50, 12.50,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** AVERAGE AMBIENT AIR TEMPERATURE (KELVIN) ***

	STABILITY CATEGORY A	STABILITY CATEGORY B	STABILITY CATEGORY C	STABILITY CATEGORY D	STABILITY CATEGORY E	STABILITY CATEGORY F
ANNUAL	300.6000	300.6000	300.6000	295.4000	290.1000	290.1000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE MIXING LAYER HEIGHT (METERS) ***

ANNUAL

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY A	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000
STABILITY CATEGORY B	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY C	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY D	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY E	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000
STABILITY CATEGORY F	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA85.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1985 YEAR: 1985

ANNUAL: STABILITY CATEGORY A

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00015900	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00001500	0.00011500	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.00025800	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.00007400	0.00057100	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.00021800	0.00068500	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00005900	0.00045700	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00021800	0.00068500	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00008900	0.00068500	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00011800	0.00091400	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00014800	0.00114200	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00043500	0.00137000	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00030600	0.00137000	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00015900	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00005900	0.00045700	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00003000	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00028800	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY B

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00047000	0.00239800	0.00080000	0.00000000	0.00000000	0.00000000
22.500	0.00090600	0.00148500	0.00091400	0.00000000	0.00000000	0.00000000
45.000	0.00121900	0.00308300	0.00171300	0.00000000	0.00000000	0.00000000
67.500	0.00109400	0.00296900	0.00239800	0.00000000	0.00000000	0.00000000
90.000	0.00106500	0.00490900	0.00296900	0.00000000	0.00000000	0.00000000
112.500	0.00113700	0.00388200	0.00353900	0.00000000	0.00000000	0.00000000
135.000	0.00114700	0.00411000	0.00182700	0.00000000	0.00000000	0.00000000
157.500	0.00044400	0.00182700	0.00148500	0.00000000	0.00000000	0.00000000
180.000	0.00062700	0.00319700	0.00285400	0.00000000	0.00000000	0.00000000
202.500	0.00034600	0.00228400	0.00376800	0.00000000	0.00000000	0.00000000
225.000	0.00052900	0.00365300	0.00433800	0.00000000	0.00000000	0.00000000
247.500	0.00068000	0.00433800	0.00764900	0.00000000	0.00000000	0.00000000
270.000	0.00034300	0.00479500	0.00742100	0.00000000	0.00000000	0.00000000
292.500	0.00016200	0.00091400	0.00057100	0.00000000	0.00000000	0.00000000
315.000	0.00018400	0.00137000	0.00057100	0.00000000	0.00000000	0.00000000
337.500	0.00027100	0.00068500	0.00057100	0.00000000	0.00000000	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA85.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1985 YEAR: 1985

ANNUAL: STABILITY CATEGORY C

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00038000	0.00125600	0.00274000	0.00022900	0.00000000	0.00000000
22.500	0.00026300	0.00125600	0.00365300	0.00022900	0.00000000	0.00000000
45.000	0.00017000	0.00228400	0.00616500	0.00068500	0.00000000	0.00000000
67.500	0.00046900	0.00513700	0.01016000	0.00194100	0.00000000	0.00000000
90.000	0.00083200	0.00570800	0.01427000	0.00228400	0.00000000	0.00000000
112.500	0.00017200	0.00239800	0.00639300	0.00148500	0.00000000	0.00000000
135.000	0.00029200	0.00251200	0.00639300	0.00114200	0.00000000	0.00000000
157.500	0.00015900	0.00182700	0.00365300	0.00034300	0.00000000	0.00000000
180.000	0.00031800	0.00365300	0.00479500	0.00068500	0.00000000	0.00000000
202.500	0.00014900	0.00137000	0.00502300	0.00114200	0.00000000	0.00000000
225.000	0.00016700	0.00216900	0.00536600	0.00068500	0.00000000	0.00000000
247.500	0.00016700	0.00216900	0.00890500	0.00125600	0.00000000	0.00000000
270.000	0.00005600	0.00239800	0.01438400	0.00650700	0.00000000	0.00000000
292.500	0.00013600	0.00080000	0.00525200	0.00228400	0.00000000	0.00000000
315.000	0.00003500	0.00148500	0.00239800	0.00091400	0.00000000	0.00000000
337.500	0.00001100	0.00045700	0.00251200	0.00034300	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY D

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00005200	0.00194100	0.00993200	0.00479500	0.00045700	0.00000000
22.500	0.00015400	0.00137000	0.00639300	0.00262600	0.00011500	0.00000000
45.000	0.00055700	0.00331100	0.01027400	0.00479500	0.00011500	0.00000000
67.500	0.00026300	0.00548000	0.01392700	0.00844800	0.00034300	0.00000000
90.000	0.00027200	0.00582200	0.01415600	0.01552600	0.00000000	0.00000000
112.500	0.00032800	0.00353900	0.00799100	0.00399600	0.00011500	0.00000000
135.000	0.00030400	0.00262600	0.00867600	0.00433800	0.00011500	0.00000000
157.500	0.00039700	0.00171300	0.00468100	0.00216900	0.00011500	0.00000000
180.000	0.00029800	0.00239800	0.00764900	0.00570800	0.00091400	0.00057100
202.500	0.00016300	0.00171300	0.00753500	0.00536600	0.00068500	0.00045700
225.000	0.00004900	0.00182700	0.00468100	0.00148500	0.00000000	0.00000000
247.500	0.00039100	0.00148500	0.00479500	0.00308300	0.00011500	0.00000000
270.000	0.00015700	0.00148500	0.00844800	0.01301400	0.00022900	0.00011500
292.500	0.00040300	0.00194100	0.00627900	0.00947500	0.00194100	0.00045700
315.000	0.00016300	0.00171300	0.00696400	0.00742100	0.00045700	0.00000000
337.500	0.00028000	0.00171300	0.00650700	0.00627900	0.00022900	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA85.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1985 YEAR: 1985

ANNUAL: STABILITY CATEGORY E

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00000000	0.00536600	0.00650700	0.00000000	0.00000000	0.00000000
22.500	0.00000000	0.00182700	0.00353900	0.00000000	0.00000000	0.00000000
45.000	0.00000000	0.00719200	0.00856200	0.00000000	0.00000000	0.00000000
67.500	0.00000000	0.01495500	0.01484100	0.00000000	0.00000000	0.00000000
90.000	0.00000000	0.01255800	0.01210100	0.00000000	0.00000000	0.00000000
112.500	0.00000000	0.00856200	0.00468100	0.00000000	0.00000000	0.00000000
135.000	0.00000000	0.00570800	0.00353900	0.00000000	0.00000000	0.00000000
157.500	0.00000000	0.00639300	0.00274000	0.00000000	0.00000000	0.00000000
180.000	0.00000000	0.00490900	0.00342500	0.00000000	0.00000000	0.00000000
202.500	0.00000000	0.00296900	0.00159900	0.00000000	0.00000000	0.00000000
225.000	0.00000000	0.00399600	0.00205500	0.00000000	0.00000000	0.00000000
247.500	0.00000000	0.00319700	0.00137000	0.00000000	0.00000000	0.00000000
270.000	0.00000000	0.00331100	0.00502300	0.00000000	0.00000000	0.00000000
292.500	0.00000000	0.00399600	0.00616500	0.00000000	0.00000000	0.00000000
315.000	0.00000000	0.00422400	0.00570800	0.00000000	0.00000000	0.00000000
337.500	0.00000000	0.00251200	0.00376800	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY F

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00526200	0.00970400	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00435100	0.00399600	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.01086300	0.01518300	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.01639000	0.03253500	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.01676500	0.02568500	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00856500	0.01575400	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00494000	0.00901900	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00385400	0.00650700	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00399300	0.00593700	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00184500	0.00376800	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00220200	0.00513700	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00300100	0.00433800	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00262900	0.00456700	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00541700	0.00753500	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00545000	0.01153000	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00379500	0.00627900	0.00000000	0.00000000	0.00000000	0.00000000

SUM OF FREQUENCIES, FTOTAL = 1.00014

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00	391200.00	391300.00	391400.00	391500.00
3107900.00	0.047827	0.047110	0.046115	0.044819	0.043189	0.041199	0.038839	0.036124	0.037864
3107800.00	0.049746	0.050443	0.049545	0.048285	0.046631	0.044540	0.041989	0.038984	0.037828
3107700.00	0.051772	0.052545	0.053435	0.052283	0.050649	0.048489	0.045754	0.042436	0.038588
3107600.00	0.053901	0.054765	0.055746	0.056864	0.055342	0.053163	0.050270	0.046623	0.042252
3107500.00	0.056125	0.057098	0.058187	0.059406	0.060781	0.058696	0.055694	0.051628	0.046426
3107400.00	0.058435	0.059536	0.060751	0.062087	0.063556	0.065181	0.062036	0.057279	0.051325
3107300.00	0.060813	0.062063	0.063429	0.064904	0.066476	0.067928	0.069202	0.064111	0.057298
3107200.00	0.063241	0.064667	0.066212	0.067854	0.069441	0.070444	0.071346	0.072187	0.064476
3107100.00	0.071923	0.070256	0.069098	0.070937	0.072325	0.073188	0.073639	0.073483	0.072725
3107000.00	0.083996	0.083491	0.082360	0.080260	0.076382	0.076383	0.076423	0.075047	0.071842
3106900.00	0.096963	0.097912	0.098409	0.097650	0.095057	0.090684	0.084075	0.078000	0.072217
3106800.00	0.110530	0.113158	0.115619	0.116814	0.116308	0.113798	0.108002	0.097598	0.081747
3106700.00	0.124324	0.128752	0.133359	0.137025	0.139191	0.139516	0.136212	0.126818	0.108127
3106600.00	0.127654	0.132287	0.137098	0.140874	0.143134	0.143494	0.140104	0.130506	0.111516
3106500.00	0.123064	0.126717	0.130343	0.132654	0.133250	0.131856	0.127062	0.117365	0.101701
3106400.00	0.118866	0.121673	0.124290	0.125840	0.125406	0.123284	0.118867	0.107684	0.090009
3106300.00	0.115131	0.117246	0.119085	0.120379	0.119141	0.113207	0.104891	0.093401	0.078803
3106200.00	0.111893	0.113474	0.113120	0.110748	0.106554	0.100264	0.092229	0.082368	0.071061
3106100.00	0.106560	0.104842	0.102539	0.099488	0.095393	0.089177	0.081852	0.073634	0.063334
3106000.00	0.097914	0.095665	0.092858	0.089384	0.085137	0.079818	0.073363	0.065630	0.056464
3105900.00	0.089878	0.087259	0.084139	0.080462	0.076198	0.071416	0.065864	0.058644	0.050480
3105800.00	0.082500	0.079651	0.076377	0.072666	0.068583	0.064164	0.058837	0.052559	0.045261
3105700.00	0.075791	0.072829	0.069524	0.065941	0.062202	0.057774	0.052634	0.046827	0.040492
3105600.00	0.069736	0.066752	0.063550	0.060299	0.056508	0.052154	0.047249	0.041860	0.036136
3105500.00	0.064298	0.061403	0.058522	0.055207	0.051436	0.047210	0.042562	0.037569	0.035169

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391600.00	391700.00	391800.00	391900.00	392000.00	392100.00	392200.00	392300.00	392400.00
3107900.00	0.041888	0.046222	0.050772	0.055421	0.056298	0.053945	0.051454	0.048893	0.046323
3107800.00	0.042404	0.047406	0.052719	0.058185	0.059326	0.056760	0.054048	0.051270	0.048501
3107700.00	0.042639	0.048414	0.054644	0.061107	0.062591	0.059810	0.056876	0.053890	0.050979
3107600.00	0.042419	0.048859	0.056045	0.063730	0.065657	0.062686	0.059708	0.056761	0.053635
3107500.00	0.041207	0.048406	0.056728	0.065835	0.068345	0.065284	0.062339	0.059508	0.056083
3107400.00	0.044489	0.047024	0.056505	0.067255	0.070528	0.067565	0.064961	0.061914	0.058217
3107300.00	0.049137	0.044369	0.054746	0.067247	0.071516	0.069090	0.067494	0.063889	0.060139
3107200.00	0.054555	0.043896	0.050609	0.064594	0.070109	0.069163	0.068477	0.065149	0.061866
3107100.00	0.060666	0.046794	0.043080	0.057223	0.064115	0.066596	0.066734	0.065571	0.064447
3107000.00	0.066930	0.048502	0.032699	0.043362	0.051686	0.058698	0.061692	0.066372	0.074449
3106900.00	0.061835	0.048688	0.023934	0.022774	0.032956	0.040467	0.055922	0.074668	0.087095
3106800.00	0.062286	0.037768	0.018512	0.008587	0.023007	0.019067	0.054112	0.087805	0.104003
3106700.00	0.079030	0.041831	0.021621	0.007564	0.006529	0.031182	0.069148	0.106307	0.129151
3106600.00	0.082163	0.045233	0.028244	0.004619	0.008735	0.039320	0.059716	0.089660	0.115255
3106500.00	0.078380	0.042249	0.015829	0.005381	0.007259	0.016449	0.033389	0.050542	0.074085
3106400.00	0.067191	0.044042	0.019841	0.013138	0.013599	0.018308	0.028999	0.044163	0.057712
3106300.00	0.062373	0.042773	0.026586	0.026976	0.025967	0.025304	0.032769	0.042702	0.052226
3106200.00	0.056668	0.041295	0.033885	0.037159	0.036400	0.033565	0.036718	0.043074	0.049471
3106100.00	0.051298	0.039147	0.039579	0.044267	0.043781	0.039761	0.039201	0.043180	0.047639
3106000.00	0.046368	0.039746	0.043320	0.048415	0.048063	0.043640	0.040805	0.042685	0.045821
3105900.00	0.041851	0.041374	0.045479	0.050517	0.050233	0.045812	0.042369	0.041656	0.043977
3105800.00	0.038790	0.042323	0.046533	0.051325	0.051081	0.046852	0.043242	0.040321	0.042120
3105700.00	0.039050	0.042763	0.046889	0.051379	0.051166	0.047193	0.043619	0.040429	0.040040
3105600.00	0.038809	0.042513	0.046487	0.050614	0.050438	0.046771	0.043281	0.040066	0.037886
3105500.00	0.038411	0.041913	0.045602	0.049379	0.049221	0.045871	0.042636	0.039598	0.036816

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392500.00	392600.00	392700.00	392800.00	392900.00	393000.00	393100.00
3107900.00	0.043983	0.041973	0.040029	0.038174	0.036423	0.034785	0.033264
3107800.00	0.046079	0.043785	0.041584	0.039498	0.037545	0.035732	0.034206
3107700.00	0.048275	0.045661	0.043172	0.040835	0.038664	0.036848	0.036455
3107600.00	0.050545	0.047577	0.044777	0.042169	0.040002	0.039633	0.038991
3107500.00	0.052801	0.049505	0.046380	0.043795	0.043495	0.042803	0.041838
3107400.00	0.054678	0.051330	0.048369	0.048230	0.047513	0.046392	0.045017
3107300.00	0.056494	0.053485	0.053975	0.053389	0.052102	0.050425	0.048537
3107200.00	0.059038	0.060393	0.060378	0.059317	0.057293	0.054909	0.052393
3107100.00	0.067729	0.068733	0.067917	0.065917	0.063085	0.059832	0.058220
3107000.00	0.078371	0.078683	0.076661	0.074051	0.072645	0.070353	0.067689
3106900.00	0.091354	0.092180	0.091531	0.089259	0.085978	0.081898	0.077573
3106800.00	0.111818	0.113062	0.110348	0.105556	0.099883	0.093728	0.087588
3106700.00	0.137310	0.136032	0.130063	0.122166	0.113815	0.105389	0.097399
3106600.00	0.126881	0.128485	0.124654	0.118285	0.111027	0.103400	0.095963
3106500.00	0.090564	0.098475	0.100469	0.098939	0.095534	0.090940	0.085878
3106400.00	0.066386	0.072882	0.078726	0.080960	0.080811	0.078813	0.075968
3106300.00	0.059306	0.063427	0.065140	0.065249	0.067288	0.067433	0.066529
3106200.00	0.054671	0.058105	0.059877	0.060370	0.059682	0.058268	0.057786
3106100.00	0.051582	0.054243	0.055826	0.056445	0.055862	0.054877	0.053653
3106000.00	0.048843	0.051411	0.052713	0.052966	0.052643	0.051962	0.051040
3105900.00	0.046354	0.048503	0.049868	0.050111	0.049947	0.049472	0.048772
3105800.00	0.044039	0.045529	0.046775	0.047762	0.047693	0.047355	0.046813
3105700.00	0.041468	0.042813	0.044000	0.044997	0.045799	0.045555	0.045125
3105600.00	0.039150	0.040379	0.041507	0.042496	0.043332	0.044015	0.043670
3105500.00	0.037064	0.038195	0.039263	0.040231	0.041080	0.041804	0.042405

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 10 ANNUAL AVERAGE CONCENTRATION VALUES FOR GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

RANK	CONC	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	AT	RECEPTOR (XR,YR)	OF TYPE
1.	0.143494	AT (	391200.00, 3106600.00)	GC	6.	0.139191	AT (	391100.00, 3106700.00)	GC
2.	0.143134	AT (	391100.00, 3106600.00)	GC	7.	0.137310	AT (	392500.00, 3106700.00)	GC
3.	0.140874	AT (	391000.00, 3106600.00)	GC	8.	0.137098	AT (	390900.00, 3106600.00)	GC
4.	0.140104	AT (	391300.00, 3106600.00)	GC	9.	0.137025	AT (	391000.00, 3106700.00)	GC
5.	0.139516	AT (	391200.00, 3106700.00)	GC	10.	0.136212	AT (	391300.00, 3106700.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 0 Informational Message(s)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCLT2 Finishes Successfully ***
****

ISC MODEL RESULTS
NO_x - ANNUAL
100 METER GRID
YEAR: 1986

```
NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
```

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Default Wind Profile Exponents.
5. Default Vertical Potential Temperature Gradients.
6. "Upper Bound" Values For Supersquat Buildings.
7. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 STAR Average(s) for the Following Months: 0 0 0 0 0 0 0 0 0 0 0 0
Seasons/Quarters: 0 0 0 0
and Annual: 1

**Model Assumes 1 STAR Summaries In Data File for the Averaging Periods Identified Above

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Long Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Maximum Long Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of Long Term Values for Plotting (PLOTFILE Keyword)

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: st30n86.ann ; **Output Print File: st30n86.out
**Error Message File: st30n83a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.44000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.7,	0	2	4.9,	11.2,	0	3	4.9,	12.7,	0	4	4.6,	37.8,	0
5	4.6,	18.7,	0	6	4.6,	26.5,	0	7	4.6,	45.4,	0	8	4.6,	43.1,	0
9	4.6,	32.7,	0	10	4.6,	32.6,	0	11	4.6,	35.1,	0	12	4.6,	37.8,	0
13	4.6,	18.7,	0	14	4.6,	26.5,	0	15	4.6,	45.4,	0	16	4.6,	43.1,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE SPEED FOR EACH WIND SPEED CATEGORY ***
(METERS/SEC)

1.50, 2.50, 4.30, 6.80, 9.50, 12.50,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** AVERAGE AMBIENT AIR TEMPERATURE (KELVIN) ***

	STABILITY CATEGORY A	STABILITY CATEGORY B	STABILITY CATEGORY C	STABILITY CATEGORY D	STABILITY CATEGORY E	STABILITY CATEGORY F
ANNUAL	300.6000	300.6000	300.6000	295.4000	290.1000	290.1000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE MIXING LAYER HEIGHT (METERS) ***

ANNUAL

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY A	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000
STABILITY CATEGORY B	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY C	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY D	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY E	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000
STABILITY CATEGORY F	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA86.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1986 YEAR: 1986

ANNUAL: STABILITY CATEGORY A

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00019500	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00024900	0.00045700	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.00072600	0.00068500	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.00027600	0.00057100	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.00032300	0.00137000	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00032300	0.00137000	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00008100	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00010800	0.00045700	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00057900	0.00125600	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00024300	0.00102800	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00038400	0.00102800	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00071300	0.00182700	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00055200	0.00114200	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00008100	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00014200	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00005400	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY B

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00081400	0.00194100	0.00148500	0.00000000	0.00000000	0.00000000
22.500	0.00103600	0.00159900	0.00125600	0.00000000	0.00000000	0.00000000
45.000	0.00108700	0.00262600	0.00274000	0.00000000	0.00000000	0.00000000
67.500	0.00118700	0.00468100	0.00319700	0.00000000	0.00000000	0.00000000
90.000	0.00242300	0.00548000	0.00468100	0.00000000	0.00000000	0.00000000
112.500	0.00109500	0.00525200	0.00331100	0.00000000	0.00000000	0.00000000
135.000	0.00098100	0.00536600	0.00274000	0.00000000	0.00000000	0.00000000
157.500	0.00041300	0.00353900	0.00194100	0.00000000	0.00000000	0.00000000
180.000	0.00094200	0.00456700	0.00262600	0.00000000	0.00000000	0.00000000
202.500	0.00079400	0.00399600	0.00216900	0.00000000	0.00000000	0.00000000
225.000	0.00057200	0.00433800	0.00228400	0.00000000	0.00000000	0.00000000
247.500	0.00097300	0.00764900	0.00753500	0.00000000	0.00000000	0.00000000
270.000	0.00071700	0.00730600	0.01164400	0.00000000	0.00000000	0.00000000
292.500	0.00094500	0.00216900	0.00148500	0.00000000	0.00000000	0.00000000
315.000	0.00020900	0.00182700	0.00182700	0.00000000	0.00000000	0.00000000
337.500	0.00054600	0.00137000	0.00080000	0.00000000	0.00000000	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA86.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1986 YEAR: 1986

ANNUAL: STABILITY CATEGORY C

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00034400	0.00205500	0.00422400	0.00022900	0.00000000	0.00000000
22.500	0.00007000	0.00137000	0.00285400	0.00022900	0.00000000	0.00000000
45.000	0.00044800	0.00411000	0.00490900	0.00091400	0.00000000	0.00000000
67.500	0.00052200	0.00559400	0.00730600	0.00091400	0.00000000	0.00000000
90.000	0.00102000	0.00833400	0.01061700	0.00102800	0.00000000	0.00000000
112.500	0.00051100	0.00536600	0.00639300	0.00022900	0.00000000	0.00000000
135.000	0.00059600	0.00468100	0.00525200	0.00057100	0.00000000	0.00000000
157.500	0.00027600	0.00308300	0.00159900	0.00000000	0.00000000	0.00000000
180.000	0.00023000	0.00216900	0.00445300	0.00045700	0.00000000	0.00000000
202.500	0.00019500	0.00148500	0.00399600	0.00034300	0.00000000	0.00000000
225.000	0.00022400	0.00205500	0.00331100	0.00022900	0.00000000	0.00000000
247.500	0.00028700	0.00331100	0.00548000	0.00034300	0.00000000	0.00000000
270.000	0.00035100	0.00456700	0.01815100	0.00228400	0.00000000	0.00000000
292.500	0.00007500	0.00148500	0.00593700	0.00102800	0.00000000	0.00000000
315.000	0.00018400	0.00125600	0.00285400	0.00011500	0.00000000	0.00000000
337.500	0.00004100	0.00080000	0.00228400	0.00045700	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY D

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00035900	0.00388200	0.00570800	0.00433800	0.00000000	0.00000000
22.500	0.00046900	0.00365300	0.00525200	0.00205500	0.00000000	0.00000000
45.000	0.00127700	0.00685000	0.00924700	0.00479500	0.00000000	0.00000000
67.500	0.00125100	0.00605100	0.00947500	0.00376800	0.00000000	0.00000000
90.000	0.00130200	0.00764900	0.01107400	0.00262600	0.00000000	0.00011500
112.500	0.00061900	0.00468100	0.00753500	0.00148500	0.00000000	0.00000000
135.000	0.00074800	0.00502300	0.00753500	0.00308300	0.00000000	0.00000000
157.500	0.00077000	0.00570800	0.00445300	0.00102800	0.00000000	0.00000000
180.000	0.00096200	0.00433800	0.00810600	0.00182700	0.00000000	0.00011500
202.500	0.00036600	0.00411000	0.00582200	0.00114200	0.00000000	0.00000000
225.000	0.00048000	0.00399600	0.00296900	0.00011500	0.00011500	0.00000000
247.500	0.00006200	0.00194100	0.00422400	0.00159900	0.00000000	0.00000000
270.000	0.00026600	0.00468100	0.00593700	0.00353900	0.00034300	0.00000000
292.500	0.00017600	0.00182700	0.00525200	0.00331100	0.00057100	0.00011500
315.000	0.00051800	0.00148500	0.00388200	0.00285400	0.00080000	0.00000000
337.500	0.00042900	0.00239800	0.00411000	0.00376800	0.00000000	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA86.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1986 YEAR: 1986

ANNUAL: STABILITY CATEGORY E

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00000000	0.00411000	0.00285400	0.00000000	0.00000000	0.00000000
22.500	0.00000000	0.00353900	0.00285400	0.00000000	0.00000000	0.00000000
45.000	0.00000000	0.01038900	0.00776300	0.00000000	0.00000000	0.00000000
67.500	0.00000000	0.00993200	0.00342500	0.00000000	0.00000000	0.00000000
90.000	0.00000000	0.01472700	0.00707800	0.00000000	0.00000000	0.00000000
112.500	0.00000000	0.01244300	0.00433800	0.00000000	0.00000000	0.00000000
135.000	0.00000000	0.00981800	0.00296900	0.00000000	0.00000000	0.00000000
157.500	0.00000000	0.00627900	0.00091400	0.00000000	0.00000000	0.00000000
180.000	0.00000000	0.00696400	0.00137000	0.00000000	0.00000000	0.00000000
202.500	0.00000000	0.00490900	0.00091400	0.00000000	0.00000000	0.00000000
225.000	0.00000000	0.00502300	0.00057100	0.00000000	0.00000000	0.00000000
247.500	0.00000000	0.00502300	0.00228400	0.00000000	0.00000000	0.00000000
270.000	0.00000000	0.00422400	0.00342500	0.00000000	0.00000000	0.00000000
292.500	0.00000000	0.00490900	0.00308300	0.00000000	0.00000000	0.00000000
315.000	0.00000000	0.00411000	0.00331100	0.00000000	0.00000000	0.00000000
337.500	0.00000000	0.00216900	0.00216900	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY F

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00637200	0.00913300	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00384100	0.00490900	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.01325900	0.01575400	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.02445100	0.02774000	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.02602500	0.02785400	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.01740600	0.02066300	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00643900	0.00799100	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00535200	0.00662200	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00542700	0.00639300	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00229900	0.00399600	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00559200	0.00776300	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00349900	0.00525200	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00353000	0.00445300	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00571400	0.00856200	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00768200	0.01427000	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00364500	0.00433800	0.00000000	0.00000000	0.00000000	0.00000000

SUM OF FREQUENCIES, FTOTAL = 1.00014

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00	391200.00	391300.00	391400.00	391500.00
3107900.00	0.052852	0.051671	0.050170	0.048326	0.046113	0.043513	0.040533	0.037205	0.037856
3107800.00	0.055273	0.055340	0.053911	0.052072	0.049795	0.047047	0.043820	0.040139	0.038094
3107700.00	0.057845	0.057923	0.058143	0.056382	0.054087	0.051219	0.047747	0.043684	0.039116
3107600.00	0.060568	0.060675	0.060909	0.061309	0.059087	0.056149	0.052453	0.047983	0.042804
3107500.00	0.063438	0.063595	0.063862	0.064271	0.064864	0.061970	0.058097	0.053113	0.046991
3107400.00	0.066446	0.066680	0.067005	0.067441	0.068015	0.068772	0.064672	0.058888	0.051924
3107300.00	0.069574	0.069918	0.070335	0.070828	0.071396	0.071817	0.072066	0.065884	0.057975
3107200.00	0.072800	0.073292	0.073846	0.074442	0.074917	0.074731	0.074471	0.074159	0.065282
3107100.00	0.077982	0.077682	0.077533	0.078283	0.078457	0.078058	0.077260	0.075837	0.073713
3107000.00	0.084529	0.084749	0.084750	0.084341	0.082741	0.082045	0.080841	0.078188	0.073604
3106900.00	0.091705	0.092616	0.093368	0.093335	0.092172	0.090150	0.086863	0.082415	0.075422
3106800.00	0.099366	0.101112	0.102824	0.103611	0.103401	0.102208	0.099142	0.093092	0.082289
3106700.00	0.107315	0.109993	0.112798	0.114854	0.116015	0.116343	0.114759	0.109738	0.098276
3106600.00	0.107569	0.110250	0.113053	0.115075	0.116188	0.116411	0.114602	0.109203	0.097273
3106500.00	0.101875	0.103852	0.105836	0.106923	0.107009	0.106080	0.103144	0.096953	0.085801
3106400.00	0.096509	0.097878	0.099174	0.099807	0.099305	0.097958	0.095263	0.089753	0.080500
3106300.00	0.091595	0.092477	0.093264	0.093806	0.093216	0.091760	0.089115	0.084660	0.078409
3106200.00	0.087215	0.087742	0.088263	0.088678	0.088227	0.086788	0.084602	0.081591	0.076898
3106100.00	0.083460	0.083826	0.084137	0.084327	0.084226	0.082996	0.081395	0.078644	0.067047
3106000.00	0.080176	0.080361	0.080504	0.080568	0.080512	0.080122	0.078313	0.069223	0.058580
3105900.00	0.077204	0.077276	0.077328	0.077346	0.077321	0.076622	0.069797	0.061143	0.051463
3105800.00	0.074528	0.074540	0.074559	0.074586	0.074070	0.068490	0.061894	0.054242	0.045471
3105700.00	0.072126	0.072120	0.072146	0.071723	0.066933	0.061356	0.054980	0.047865	0.040172
3105600.00	0.069973	0.069977	0.069602	0.065404	0.060580	0.055114	0.049030	0.042414	0.035440
3105500.00	0.068039	0.067687	0.063954	0.059712	0.054942	0.049655	0.043896	0.037763	0.034328

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391600.00	391700.00	391800.00	391900.00	392000.00	392100.00	392200.00	392300.00	392400.00
3107900.00	0.040505	0.043396	0.046475	0.049668	0.049588	0.046740	0.043874	0.041064	0.038373
3107800.00	0.041121	0.044477	0.048095	0.051876	0.051876	0.048678	0.045480	0.042375	0.039436
3107700.00	0.041558	0.045465	0.049747	0.054264	0.054374	0.050758	0.047172	0.043738	0.040823
3107600.00	0.041657	0.045990	0.050953	0.056405	0.056665	0.052565	0.048677	0.045088	0.042475
3107500.00	0.040872	0.045777	0.051625	0.058212	0.058685	0.054047	0.049790	0.046100	0.043876
3107400.00	0.044150	0.044831	0.051669	0.059671	0.060431	0.055191	0.050633	0.047337	0.045000
3107300.00	0.048772	0.042745	0.050489	0.060178	0.061327	0.055519	0.050970	0.048255	0.045983
3107200.00	0.054223	0.042533	0.047172	0.058573	0.060212	0.054210	0.050656	0.048616	0.046838
3107100.00	0.060484	0.045535	0.040509	0.052620	0.054778	0.049936	0.048599	0.048302	0.048913
3107000.00	0.067128	0.047790	0.031063	0.039767	0.042319	0.041713	0.044039	0.049051	0.062946
3106900.00	0.063515	0.048780	0.021783	0.017035	0.019174	0.024762	0.040081	0.064227	0.081555
3106800.00	0.065836	0.035491	0.014862	0.003639	0.005402	0.011773	0.046720	0.085645	0.105106
3106700.00	0.075799	0.035174	0.011189	0.003689	0.002249	0.013736	0.059734	0.114919	0.137738
3106600.00	0.074828	0.036859	0.017668	0.005805	0.002703	0.017156	0.047051	0.095318	0.120685
3106500.00	0.068388	0.040218	0.019929	0.004824	0.006575	0.012794	0.026740	0.043477	0.067073
3106400.00	0.067309	0.051853	0.022893	0.014223	0.013684	0.017426	0.029127	0.039369	0.048558
3106300.00	0.069740	0.047731	0.028265	0.029348	0.027159	0.023518	0.030403	0.038298	0.044268
3106200.00	0.061129	0.043603	0.034997	0.038801	0.036700	0.030504	0.032133	0.037104	0.041557
3106100.00	0.053431	0.039287	0.039785	0.044698	0.042892	0.036019	0.033109	0.036186	0.039262
3106000.00	0.046843	0.038921	0.042574	0.047581	0.046051	0.039397	0.034228	0.035170	0.037297
3105900.00	0.041231	0.040075	0.043898	0.048561	0.047246	0.041137	0.035923	0.033960	0.035523
3105800.00	0.037594	0.040610	0.044255	0.048438	0.047285	0.041795	0.036855	0.032642	0.033854
3105700.00	0.037706	0.040686	0.044043	0.047753	0.046723	0.041811	0.037245	0.033100	0.032084
3105600.00	0.037284	0.040148	0.043255	0.046515	0.045590	0.041216	0.037000	0.033076	0.030278
3105500.00	0.036717	0.039326	0.042105	0.044984	0.044149	0.040254	0.036457	0.032864	0.029556

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392500.00	392600.00	392700.00	392800.00	392900.00	393000.00	393100.00
3107900.00	0.036302	0.035053	0.033914	0.032891	0.031981	0.031180	0.030480
3107800.00	0.037662	0.036241	0.034952	0.033797	0.032774	0.031876	0.031253
3107700.00	0.039067	0.037457	0.036002	0.034705	0.033560	0.032771	0.033520
3107600.00	0.040496	0.038685	0.037055	0.035608	0.034619	0.035669	0.036220
3107500.00	0.041877	0.039907	0.038104	0.036884	0.038364	0.039150	0.039410
3107400.00	0.042901	0.041033	0.039664	0.041782	0.042910	0.043294	0.043142
3107300.00	0.043911	0.042690	0.046058	0.047799	0.048366	0.048167	0.047457
3107200.00	0.045928	0.050963	0.053844	0.055065	0.054817	0.053813	0.052374
3107100.00	0.056960	0.061563	0.063467	0.063544	0.062297	0.060239	0.058798
3107000.00	0.071297	0.074777	0.075033	0.073814	0.072548	0.070248	0.067534
3106900.00	0.089331	0.091659	0.091220	0.088814	0.085336	0.081107	0.076672
3106800.00	0.113716	0.114282	0.110589	0.104972	0.098727	0.092267	0.085953
3106700.00	0.143426	0.139238	0.130969	0.121515	0.112205	0.103302	0.095068
3106600.00	0.129968	0.129036	0.123289	0.115691	0.107739	0.099846	0.092353
3106500.00	0.084404	0.092443	0.094366	0.092826	0.089538	0.085231	0.080508
3106400.00	0.054393	0.060647	0.068103	0.071475	0.072216	0.071049	0.068910
3106300.00	0.048832	0.051550	0.052705	0.052818	0.056360	0.057798	0.057914
3106200.00	0.044790	0.047035	0.048283	0.048719	0.048330	0.047387	0.047786
3106100.00	0.041756	0.043542	0.044735	0.045327	0.045059	0.044473	0.043684
3106000.00	0.039243	0.040876	0.041949	0.042339	0.042302	0.041979	0.041451
3105900.00	0.037090	0.038532	0.039494	0.039910	0.040025	0.039887	0.039554
3105800.00	0.035157	0.036205	0.037143	0.037966	0.038176	0.038163	0.037969
3105700.00	0.033081	0.034073	0.035017	0.035893	0.036693	0.036764	0.036666
3105600.00	0.031192	0.032140	0.033080	0.033986	0.034841	0.035639	0.035611
3105500.00	0.029471	0.030381	0.031309	0.032227	0.033117	0.033963	0.034760

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 10 ANNUAL AVERAGE CONCENTRATION VALUES FOR GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

RANK	CONC	AT	RECEPTOR (XR,YR) OF TYPE	RANK	CONC	AT	RECEPTOR (XR,YR) OF TYPE
1.	0.143426	AT (	392500.00, 3106700.00) GC	6.	0.129036	AT (	392600.00, 3106600.00) GC
2.	0.139238	AT (	392600.00, 3106700.00) GC	7.	0.123289	AT (	392700.00, 3106600.00) GC
3.	0.137738	AT (	392400.00, 3106700.00) GC	8.	0.121515	AT (	392800.00, 3106700.00) GC
4.	0.130969	AT (	392700.00, 3106700.00) GC	9.	0.120685	AT (	392400.00, 3106600.00) GC
5.	0.129968	AT (	392500.00, 3106600.00) GC	10.	0.116411	AT (	391200.00, 3106600.00) GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 0 Informational Message(s)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCLT2 Finishes Successfully ***
****

ISC MODEL RESULTS
CO 1- AND 8-HOUR
100 METER GRID
YEAR: 1982

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
8. "Upper Bound" Values for Supersquat Buildings.
9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 2 Short Term Average(s) of: 1-HR 8-HR

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: CO

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: S30CO82.dta ; **Output Print File: S30CO82.lst
**File for Saving Result Arrays: CO.SAV
**Detailed Error/Message File: S30CO82a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.74000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.3,	0	2	4.9,	10.0,	0	3	4.9,	11.4,	0	4	4.9,	12.5,	0	5	4.9,	12.7,	0	6	4.6,	36.9,	0
7	4.6,	37.8,	0	8	4.6,	37.8,	0	9	4.6,	15.7,	0	10	4.6,	18.9,	0	11	4.6,	23.4,	0	12	4.6,	27.1,	0
13	4.6,	45.4,	0	14	4.6,	45.0,	0	15	4.6,	43.4,	0	16	4.6,	40.5,	0	17	4.6,	36.3,	0	18	4.6,	31.9,	0
19	4.6,	32.3,	0	20	4.6,	32.6,	0	21	4.6,	32.6,	0	22	4.6,	32.0,	0	23	4.6,	34.9,	0	24	4.6,	36.9,	0
25	4.6,	37.8,	0	26	4.6,	37.8,	0	27	4.6,	15.7,	0	28	4.6,	18.9,	0	29	4.6,	23.4,	0	30	4.6,	27.1,	0
31	4.6,	45.4,	0	32	4.6,	45.0,	0	33	4.6,	43.4,	0	34	4.6,	40.5,	0	35	4.6,	36.3,	0	36	4.6,	31.9,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: ltampa82.bin FORMAT: UNFORM
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1982 YEAR: 1982

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN
82	1	1	1	291.0	1.54	293.2	4	683.0	683.0
82	1	1	2	288.0	1.54	293.2	5	683.0	559.0
82	1	1	3	194.0	1.54	293.2	6	683.0	559.0
82	1	1	4	193.0	1.00	293.2	5	683.0	559.0
82	1	1	5	23.0	3.09	293.2	4	683.0	683.0
82	1	1	6	22.0	2.57	293.2	4	683.0	683.0
82	1	1	7	5.0	2.57	293.2	4	683.0	683.0
82	1	1	8	43.0	2.06	293.2	4	683.0	683.0
82	1	1	9	77.0	1.54	293.7	4	683.0	683.0
82	1	1	10	341.0	1.54	294.8	3	683.0	683.0
82	1	1	11	64.0	2.57	296.5	4	683.0	683.0
82	1	1	12	66.0	2.06	297.6	4	683.0	683.0
82	1	1	13	33.0	2.57	299.3	3	683.0	683.0
82	1	1	14	29.0	3.09	299.3	3	683.0	683.0
82	1	1	15	52.0	2.57	299.3	3	683.0	683.0
82	1	1	16	94.0	3.09	298.7	3	683.0	683.0
82	1	1	17	101.0	3.60	297.6	4	683.0	683.0
82	1	1	18	117.0	2.57	295.9	5	695.0	683.0
82	1	1	19	134.0	2.57	294.3	6	734.0	682.0
82	1	1	20	157.0	3.09	293.7	6	772.0	681.0
82	1	1	21	230.0	1.54	292.6	7	811.0	680.0
82	1	1	22	232.0	1.00	292.0	7	850.0	679.0
82	1	1	23	220.0	2.06	292.6	6	888.0	678.0
82	1	1	24	280.0	3.09	292.6	6	927.0	677.0

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	4.79783 (82120211)	5.03161 (82060419)	5.22419 (82122315)	5.41755 (82122615)	5.59463 (82020214)
3107800.0	5.00275 (82122713)	5.21245 (82120211)	5.42049 (82013015)	5.59203 (82112812)	5.82005 (82112811)
3107700.0	5.20172 (82122513)	5.42944 (82120216)	5.67141 (82120211)	5.86611 (82013015)	6.15101 (82112812)
3107600.0	5.39310 (82060409)	5.63006 (82060412)	5.93722 (82120216)	6.20893 (82060414)	6.30569 (82120311)
3107500.0	5.53437 (82100413)	5.85647 (82120316)	6.11066 (82060412)	6.45115 (82120216)	6.83409 (82060414)
3107400.0	5.74288 (82120410)	6.06940 (82120318)	6.34616 (82060410)	6.75751 (82120213)	7.01120 (82121513)
3107300.0	5.85929 (82101310)	6.24583 (82120317)	6.54031 (82120315)	6.99241 (82122512)	7.37214 (82122413)
3107200.0	6.08586 (82120214)	6.37803 (82100221)	6.75147 (82120312)	7.24661 (82111112)	7.44402 (82013013)
3107100.0	6.15041 (82122514)	6.29143 (82051918)	6.94401 (82100518)	7.42711 (82120313)	8.02791 (82120312)
3107000.0	6.31246 (82100313)	6.36931 (82100410)	7.08474 (82100410)	7.78005 (82033010)	8.46301 (82013011)
3106900.0	6.46271 (82090118)	6.81685 (82100312)	7.18608 (82101212)	7.74513 (82101212)	7.33623 (82100313)
3106800.0	6.37873 (82111612)	6.77947 (82101813)	7.38970 (82101813)	7.70095 (82101813)	7.95014 (82033011)
3106700.0	6.54881 (82112012)	7.02236 (82100311)	7.53092 (82100311)	7.99106 (82100311)	8.75116 (82032902)
3106600.0	6.44139 (82042415)	6.81076 (82042415)	7.32907 (82083117)	8.00883 (82080920)	8.90717 (82080920)
3106500.0	6.46159 (82033015)	6.95427 (82111014)	7.43872 (82111014)	7.99639 (82032910)	8.33372 (82012917)
3106400.0	6.38098 (82102812)	6.74977 (82042908)	7.33191 (82111611)	7.77533 (82050515)	8.38838 (82032812)
3106300.0	6.28070 (82051009)	6.70487 (82101811)	7.16255 (82042317)	7.71391 (82032913)	8.07566 (82083016)
3106200.0	6.24487 (82083114)	6.62156 (82101915)	7.01784 (82083016)	7.53996 (82050516)	7.97164 (82042315)
3106100.0	6.87133 (82052206)	6.39497 (82050516)	6.82623 (82083109)	7.09601 (82093016)	7.75715 (82042314)
3106000.0	5.90478 (82101911)	6.27670 (82093016)	6.48072 (82083018)	6.90947 (82092603)	7.37910 (82090616)
3105900.0	5.83662 (82111515)	6.05563 (82083015)	6.40259 (82032707)	7.34899 (82032707)	7.06634 (82110816)
3105800.0	5.55513 (82100217)	7.01246 (82032707)	7.00801 (82032707)	6.39652 (82111517)	6.62547 (82110822)
3105700.0	7.15945 (82032707)	6.48018 (82032707)	5.92217 (82111517)	6.06065 (82110615)	6.30479 (82110717)
3105600.0	5.89071 (82032707)	5.47429 (82111517)	5.57857 (82110615)	5.84955 (82110717)	6.08917 (82060718)
3105500.0	5.39934 (82102807)	5.36179 (82102807)	5.38098 (82110717)	5.66304 (82060718)	5.76602 (82111012)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	5.67793 (82061713)	5.85286 (82020215)	6.42617 (82062407)	6.14492 (82040301)	6.24925 (82061722)
3107800.0	6.04484 (82120510)	6.24786 (82060617)	6.60036 (82062407)	6.42903 (82011304)	6.74325 (82042513)
3107700.0	6.31900 (82021512)	6.58449 (82120310)	6.78627 (82120511)	6.70730 (82013111)	7.20223 (82120512)
3107600.0	6.74321 (82120413)	6.99049 (82020212)	7.28140 (82040811)	7.35459 (82013110)	7.33112 (82011304)
3107500.0	7.04765 (82120311)	7.36977 (82120412)	7.43726 (82120310)	7.93501 (82020310)	8.48247 (82013111)
3107400.0	7.50454 (82060414)	7.73782 (82120311)	7.82691 (82120412)	8.41082 (82040811)	8.14213 (82013110)
3107300.0	7.98275 (82121513)	8.08537 (82060414)	7.98871 (82120311)	8.07090 (82020212)	8.94978 (82040810)
3107200.0	8.17874 (82121511)	8.78487 (82121513)	8.28035 (82060414)	7.62042 (82120413)	7.88795 (82022710)
3107100.0	8.71805 (82052316)	8.98716 (82061618)	10.34714 (82121512)	8.34090 (82101312)	8.65448 (82020211)
3107000.0	8.25179 (82120313)	8.93873 (82120312)	8.93100 (82052316)	12.29958 (82121512)	9.23145 (82101312)
3106900.0	8.05113 (82033010)	9.28074 (82013011)	8.55093 (82013011)	9.71584 (82052316)	10.32032 (82121511)
3106800.0	8.63368 (82033011)	7.91083 (82033012)	8.75887 (82050613)	8.20019 (82112713)	8.08218 (82101213)
3106700.0	9.82440 (82032902)	10.70624 (82032902)	10.89755 (82032902)	9.50323 (82040714)	9.13514 (82040714)
3106600.0	10.07100 (82061519)	11.25605 (82061519)	11.70873 (82061519)	10.24178 (82061519)	8.15406 (82051815)
3106500.0	7.76184 (82012917)	8.42050 (82111611)	8.81982 (82092810)	9.07002 (82050312)	8.24373 (82092911)
3106400.0	8.94269 (82042317)	9.04960 (82032913)	9.59513 (82020422)	11.32446 (82032818)	8.74777 (82100111)
3106300.0	9.00287 (82020422)	9.16247 (82042315)	10.09387 (82043017)	8.34203 (82012712)	8.82627 (82093012)
3106200.0	8.81974 (82043017)	8.87944 (82042308)	9.20142 (82032822)	9.70255 (82041009)	8.86606 (82080411)
3106100.0	8.14787 (82062513)	8.77413 (82032822)	9.22198 (82041009)	8.55203 (82110812)	8.47902 (82110616)
3106000.0	7.81723 (82110813)	8.28973 (82041009)	8.40482 (82110713)	9.24234 (82110616)	8.96148 (82110611)
3105900.0	7.30937 (82041009)	7.74403 (82110713)	8.03917 (82121310)	7.41823 (82042302)	8.34369 (82110719)
3105800.0	6.93250 (82110706)	7.30641 (82110722)	7.43827 (82032718)	7.87961 (82110611)	7.58774 (82102414)
3105700.0	6.66842 (82110812)	6.84234 (82110616)	6.95774 (82042302)	7.19910 (82110719)	7.61052 (82110515)
3105600.0	6.25486 (82110906)	6.34317 (82110623)	6.62313 (82042304)	6.67060 (82040702)	6.87161 (82111310)
3105500.0	5.94689 (82110823)	6.01503 (82042302)	6.28226 (82120815)	6.50080 (82102414)	6.61608 (82110614)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	7.25379 (82040307)	6.45070 (82040812)	6.31956 (82011403)	6.37212 (82011402)	6.30933 (82121113)
3107800.0	6.43625 (82040307)	6.96164 (82040812)	6.87352 (82011403)	6.76890 (82011402)	6.84359 (82121113)
3107700.0	7.25873 (82013112)	7.30244 (82040812)	7.52383 (82013113)	7.13266 (82011402)	7.18455 (82121113)
3107600.0	7.86312 (82013112)	7.28559 (82040812)	8.20284 (82013113)	7.48289 (82020311)	7.14825 (82022711)
3107500.0	8.43693 (82020213)	7.33348 (82121912)	8.80146 (82013113)	8.31867 (82020311)	8.00894 (82022711)
3107400.0	8.67421 (82020213)	6.94859 (82060816)	9.54937 (82061804)	9.00225 (82020311)	8.68035 (82040813)
3107300.0	9.39986 (82013111)	8.12458 (82013112)	11.13057 (82061804)	9.21597 (82020311)	8.45838 (82061803)
3107200.0	8.62261 (82080613)	9.02494 (82060914)	12.43423 (82061804)	9.22543 (82082711)	10.77594 (82040816)
3107100.0	8.51598 (82022710)	9.42295 (82060914)	12.38926 (82061804)	9.43795 (82082711)	9.50040 (82040814)
3107000.0	8.53597 (82012311)	8.00430 (82080613)	9.62134 (82061804)	9.15631 (82040312)	12.20588 (82040814)
3106900.0	9.45666 (82040213)	11.00397 (82080515)	12.21573 (82060816)	17.29106 (82040312)	10.03741 (82062214)
3106800.0	8.93088 (82080709)	15.80022 (82040213)	14.76720 (82060914)	38.94611 (82040814)	20.45560 (82061806)
3106700.0	13.71310 (82050611)	14.75874 (82050611)	14.46040 (82040213)	39.96139 (82061805)	15.57459 (82070412)
3106600.0	9.79286 (82051815)	10.49857 (82050312)	8.73275 (82050412)	34.93365 (82011414)	19.00120 (82051512)
3106500.0	10.57995 (82082917)	9.85609 (82050514)	9.57928 (82030810)	7.12119 (82101014)	19.50191 (82011414)
3106400.0	7.24636 (82093012)	8.62174 (82111312)	7.43963 (82030810)	10.21534 (82102511)	14.46544 (82040613)
3106300.0	9.57832 (82050412)	8.00886 (82111311)	5.47695 (82071018)	8.77145 (82102511)	7.54581 (82022212)
3106200.0	8.94621 (82102513)	8.01805 (82110510)	7.71025 (82121222)	9.06739 (82102511)	8.42931 (82101014)
3106100.0	8.35514 (82041114)	8.37524 (82030810)	9.20143 (82121222)	9.57406 (82041008)	9.56041 (82022211)
3106000.0	9.85450 (82110510)	8.33127 (82041109)	9.51658 (82111309)	10.09410 (82041008)	8.85691 (82062315)
3105900.0	8.27255 (82110614)	8.65517 (82110504)	9.37576 (82111309)	9.68947 (82041008)	9.09011 (82062315)
3105800.0	7.95206 (82110614)	8.41067 (82110504)	8.81703 (82111309)	8.89467 (82041008)	8.33485 (82110501)
3105700.0	7.75751 (82041109)	7.84986 (82121220)	8.09997 (82111309)	7.99391 (82041008)	7.75367 (82121218)
3105600.0	7.00830 (82041109)	7.01881 (82110505)	7.36061 (82111309)	7.33937 (82110508)	7.46263 (82071017)
3105500.0	6.75618 (82092602)	6.74256 (82110505)	6.67741 (82111309)	6.81455 (82090517)	6.87417 (82071017)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	6.36268 (82022711)	6.36171 (82032115)	6.22300 (82121112)	6.06883 (82013114)	5.90793 (82040311)
3107800.0	6.80229 (82040813)	6.79066 (82040314)	6.59779 (82040313)	6.45957 (82040515)	6.25270 (82040516)
3107700.0	7.35696 (82061803)	7.31891 (82013115)	7.00249 (82013114)	6.74830 (82040311)	6.60907 (82020917)
3107600.0	7.84098 (82050816)	7.90107 (82030703)	7.60648 (82030704)	7.28693 (82011404)	6.78814 (82120515)
3107500.0	9.02931 (82040816)	8.41015 (82040313)	8.00852 (82040518)	7.62048 (82040317)	7.51421 (82020916)
3107400.0	8.84067 (82013115)	9.44384 (82030704)	8.75090 (82040519)	8.48006 (82040818)	7.84839 (82040819)
3107300.0	9.60707 (82040313)	9.50479 (82011404)	8.45965 (82040818)	8.81728 (82040820)	8.52423 (82040514)
3107200.0	11.69596 (82040817)	9.24480 (82040519)	9.59199 (82040820)	10.01805 (82061806)	8.89029 (82061805)
3107100.0	9.67352 (82011404)	9.14363 (82061614)	11.99764 (82061806)	10.99662 (82061805)	7.99892 (82040315)
3107000.0	9.38267 (82061614)	13.70284 (82061806)	12.00188 (82061805)	7.97563 (82031915)	8.21661 (82040603)
3106900.0	13.04511 (82061806)	11.12945 (82030513)	8.56318 (82061807)	12.34520 (82061807)	9.27722 (82032216)
3106800.0	10.53647 (82030513)	15.33267 (82061807)	9.40506 (82062410)	8.78483 (82041814)	8.54400 (82040913)
3106700.0	12.59099 (82070412)	10.78057 (82062215)	10.73256 (82062215)	9.25634 (82062215)	8.10146 (82011412)
3106600.0	13.80797 (82042115)	9.98367 (82080213)	10.47285 (82080213)	9.15715 (82082116)	8.83269 (82121208)
3106500.0	19.95222 (82011413)	12.17389 (82011415)	9.89501 (82063014)	9.63705 (82040607)	9.11384 (82040607)
3106400.0	10.98248 (82040612)	12.63697 (82011413)	11.85662 (82011415)	11.29657 (82011416)	9.20288 (82040610)
3106300.0	10.27546 (82081512)	10.13489 (82080214)	9.84915 (82011414)	11.15800 (82011413)	9.06543 (82040609)
3106200.0	8.78702 (82040613)	8.88272 (82081512)	9.81910 (82080214)	9.46047 (82010915)	8.65694 (82022120)
3106100.0	10.31050 (82022212)	8.97653 (82022210)	8.23322 (82030716)	8.94753 (82012612)	8.74634 (82010915)
3106000.0	9.08718 (82022213)	8.11335 (82040911)	9.12161 (82121215)	8.19394 (82030716)	8.08265 (82121209)
3105900.0	8.34359 (82121715)	8.73660 (82022212)	8.37461 (82032614)	7.99305 (82022215)	7.42329 (82030716)
3105800.0	8.46778 (82022211)	8.05289 (82011111)	7.73143 (82032618)	7.63336 (82022210)	7.19479 (82121617)
3105700.0	7.79329 (82102515)	7.55860 (82022213)	7.36325 (82010914)	7.05545 (82032614)	6.87201 (82032615)
3105600.0	6.80092 (82102515)	7.05788 (82032616)	6.71823 (82020316)	6.72392 (82032618)	6.60615 (82101017)
3105500.0	6.84608 (82101015)	6.51078 (82032616)	6.43137 (82032611)	6.34941 (82040615)	6.12672 (82101117)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	5.70170 (82030706)	5.53874 (82120515)	5.35795 (82050817)	5.21368 (82021616)	4.92351 (82081415)
3107800.0	6.02635 (82041316)	5.79833 (82040823)	5.63189 (82021616)	5.36743 (82062116)	5.09428 (82032415)
3107700.0	6.38095 (82121115)	6.09069 (82040822)	5.90328 (82062116)	5.58475 (82032415)	5.40486 (82040821)
3107600.0	6.68975 (82040822)	6.46888 (82062116)	6.13550 (82032415)	5.87790 (82040821)	5.48679 (82073021)
3107500.0	7.15300 (82040819)	6.76169 (82040514)	6.33828 (82040821)	6.06211 (82032215)	5.64305 (82040903)
3107400.0	7.60460 (82040514)	6.71847 (82040821)	6.68668 (82032215)	6.35460 (82040315)	5.86126 (82032217)
3107300.0	6.95423 (82061805)	6.98639 (82032215)	6.75050 (82040315)	6.33002 (82032217)	6.13316 (82040603)
3107200.0	7.79696 (82040315)	6.94392 (82032217)	7.12995 (82040603)	6.57978 (82040602)	6.10733 (82052216)
3107100.0	7.80217 (82040603)	7.37188 (82040602)	7.07375 (82052216)	6.97052 (82030705)	6.26519 (82032216)
3107000.0	8.48884 (82061807)	7.82613 (82030705)	7.78032 (82032216)	6.81977 (82062818)	6.67055 (82060619)
3106900.0	7.89782 (82032216)	7.99472 (82040604)	7.57215 (82040908)	7.23070 (82062716)	6.90497 (82061115)
3106800.0	8.30152 (82040913)	8.06936 (82031814)	7.80717 (82031814)	7.26765 (82070317)	6.71312 (82070317)
3106700.0	8.46754 (82011412)	8.30287 (82011412)	7.86634 (82011412)	7.32648 (82022115)	6.89972 (82022115)
3106600.0	9.03988 (82121208)	8.70911 (82121208)	8.12934 (82121208)	7.46802 (82121208)	6.83261 (82070113)
3106500.0	8.11747 (82032602)	7.85308 (82011409)	7.85967 (82042116)	7.34671 (82042116)	6.57259 (82042116)
3106400.0	7.92545 (82022116)	7.90363 (82040607)	7.95412 (82040607)	7.24845 (82061813)	6.82813 (82061813)
3106300.0	9.05483 (82040611)	7.95678 (82063016)	7.64446 (82040610)	6.99431 (82022116)	6.49736 (82022116)
3106200.0	8.30959 (82022111)	8.02550 (82040609)	7.42198 (82040611)	6.95259 (82080210)	6.57874 (82063016)
3106100.0	7.84679 (82121712)	7.65828 (82022114)	6.97244 (82073020)	6.68942 (82040609)	6.31882 (82022110)
3106000.0	7.75763 (82022113)	7.22175 (82121213)	6.92243 (82042117)	6.57344 (82061810)	6.12489 (82073020)
3105900.0	7.36275 (82121209)	7.00320 (82061010)	6.57784 (82080217)	6.11728 (82121712)	5.87866 (82042117)
3105800.0	6.70946 (82012404)	6.63812 (82121209)	6.32156 (82063017)	6.13231 (82080217)	5.56279 (82031118)
3105700.0	6.63021 (82051617)	6.26912 (82012404)	5.98693 (82121209)	5.87718 (82063017)	5.55801 (82080217)
3105600.0	6.20081 (82032615)	5.91283 (82051617)	5.77849 (82012404)	5.41340 (82121209)	5.42089 (82063017)
3105500.0	5.80967 (82100918)	5.62584 (82010916)	5.41938 (82022813)	5.35734 (82051618)	4.96836 (82021917)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	2.47050 (82122416)	2.17704 (82122416)	2.24658 (82122316)	2.45022 (82122316)	2.19036 (82020216)
3107800.0	2.47025 (82122416)	2.69733 (82122416)	2.32591 (82122416)	2.50935 (82122316)	2.53402 (82122316)
3107700.0	2.79806 (82060416)	2.67480 (82122416)	2.95148 (82122416)	2.47525 (82122416)	2.77666 (82122316)
3107600.0	2.95799 (82060416)	3.16814 (82060416)	2.89398 (82122416)	3.23327 (82122416)	2.61453 (82122416)
3107500.0	2.71935 (82120324)	3.10617 (82060416)	3.57307 (82060416)	3.25951 (82060416)	3.53883 (82122416)
3107400.0	2.88768 (82120324)	3.05345 (82120324)	3.11813 (82060416)	3.97924 (82060416)	3.76432 (82060416)
3107300.0	2.35713 (82120316)	2.58788 (82120324)	3.19312 (82120324)	2.89472 (82060416)	4.30286 (82060416)
3107200.0	2.23812 (82051924)	2.28021 (82120316)	2.84017 (82120316)	2.95838 (82120316)	3.28333 (82120324)
3107100.0	2.03227 (82033016)	2.26967 (82051924)	2.38918 (82051924)	2.67119 (82120316)	3.42059 (82120316)
3107000.0	2.42874 (82042508)	2.38403 (82033016)	2.60731 (82033016)	2.59411 (82033016)	2.70973 (82100416)
3106900.0	2.88840 (82090124)	3.05602 (82090124)	3.01771 (82090124)	2.81341 (82033016)	3.15551 (82033016)
3106800.0	2.77666 (82111616)	2.83792 (82111616)	2.81581 (82111616)	2.65125 (82111616)	2.83110 (82033016)
3106700.0	3.06138 (82041024)	3.25314 (82041024)	3.43749 (82041024)	3.56643 (82041024)	3.57527 (82041024)
3106600.0	2.41875 (82032908)	2.55710 (82032908)	2.69907 (82050616)	2.89383 (82111116)	3.15502 (82111116)
3106500.0	2.21156 (82101816)	2.42765 (82101816)	2.66820 (82032916)	2.90913 (82032916)	2.97092 (82103016)
3106400.0	2.50864 (82103016)	2.80855 (82103016)	3.08490 (82103016)	3.97586 (82032816)	4.68294 (82032816)
3106300.0	3.50689 (82032816)	3.94384 (82032816)	3.96134 (82032816)	3.65223 (82042324)	3.48974 (82083116)
3106200.0	3.15789 (82042324)	3.13739 (82042324)	3.41766 (82020424)	3.61141 (82020424)	4.05068 (82042316)
3106100.0	3.14995 (82020424)	3.19867 (82020424)	3.25502 (82042316)	4.13740 (82042316)	3.82199 (82042316)
3106000.0	2.64170 (82042316)	3.37945 (82042316)	3.57589 (82042316)	3.21172 (82111524)	3.68168 (82110816)
3105900.0	3.11432 (82042316)	2.97100 (82111524)	2.85435 (82111524)	3.40141 (82110816)	3.41629 (82111608)
3105800.0	2.73238 (82111524)	2.69764 (82110816)	3.09138 (82110816)	3.42266 (82111608)	3.69225 (82110716)
3105700.0	2.53482 (82110816)	2.78969 (82110816)	3.35240 (82111608)	3.31789 (82110716)	3.73347 (82110716)
3105600.0	2.51197 (82110816)	3.23762 (82111608)	3.03052 (82111608)	3.38777 (82110716)	2.91430 (82110716)
3105500.0	3.09927 (82111608)	2.89195 (82111608)	3.06970 (82110716)	2.82040 (82110716)	2.77296 (82110908)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	2.40376 (82020216)	1.77004 (82011308)	2.25761 (82011308)	1.90894 (82011308)	1.81004 (82060916)
3107800.0	2.56329 (82020216)	2.35889 (82020216)	2.25961 (82011308)	2.27236 (82011308)	2.07978 (82060916)
3107700.0	2.52801 (82122316)	2.83849 (82020216)	2.00641 (82020216)	2.55445 (82011308)	2.31639 (82060916)
3107600.0	3.01660 (82122316)	2.78110 (82020216)	2.83748 (82020216)	2.55132 (82011308)	2.45396 (82060916)
3107500.0	2.72476 (82122416)	3.16930 (82122316)	3.25697 (82020216)	2.31952 (82020216)	2.78280 (82011308)
3107400.0	3.85485 (82122416)	2.76756 (82122416)	3.08489 (82122316)	3.26405 (82020216)	2.69009 (82011308)
3107300.0	4.33036 (82060416)	4.09047 (82122416)	2.90542 (82122316)	3.22017 (82020216)	2.97882 (82080616)
3107200.0	4.33452 (82060416)	4.82687 (82060416)	4.08238 (82122416)	3.10971 (82080616)	3.59150 (82080616)
3107100.0	3.52658 (82040216)	3.74606 (82060416)	5.02727 (82060416)	3.59902 (82122416)	3.66699 (82080616)
3107000.0	2.98549 (82120316)	3.95508 (82040216)	4.39921 (82051416)	4.43215 (82060416)	2.91443 (82060316)
3106900.0	3.36041 (82033016)	2.91452 (82033016)	3.13166 (82040216)	4.74021 (82040216)	4.02352 (82051416)
3106800.0	3.17121 (82033016)	3.45291 (82033016)	3.54887 (82033016)	3.04556 (82033016)	2.26992 (82040216)
3106700.0	3.65763 (82083016)	3.92537 (82083016)	3.98353 (82083016)	3.58439 (82083016)	2.55792 (82083016)
3106600.0	3.38736 (82111116)	3.52906 (82111116)	3.46435 (82111116)	3.23074 (82112116)	2.61193 (82112116)
3106500.0	3.22101 (82103016)	3.24436 (82103016)	3.83422 (82032816)	3.59600 (82090616)	4.27199 (82050316)
3106400.0	4.47274 (82032816)	3.55578 (82050316)	4.94099 (82050316)	5.55044 (82050316)	4.41008 (82043016)
3106300.0	4.02745 (82050516)	4.80420 (82050316)	4.83592 (82050316)	4.13213 (82043016)	3.40536 (82110716)
3106200.0	4.87226 (82042316)	3.83869 (82043016)	4.30764 (82110816)	4.51058 (82110716)	3.21217 (82080416)
3106100.0	3.81952 (82110816)	4.20735 (82110816)	4.72545 (82110716)	4.04461 (82110716)	3.67702 (82110616)
3106000.0	3.83200 (82110816)	4.50368 (82110716)	4.47524 (82110716)	3.65904 (82110616)	2.90060 (82110616)
3105900.0	4.10747 (82110716)	4.40205 (82110716)	3.41887 (82102324)	3.35858 (82110616)	2.80331 (82110516)
3105800.0	4.08826 (82110716)	3.35485 (82102324)	3.24106 (82110616)	2.67963 (82102316)	3.03638 (82110516)
3105700.0	3.04621 (82102324)	3.19756 (82110908)	2.72643 (82110616)	2.47679 (82110516)	3.09462 (82110516)
3105600.0	3.03481 (82110908)	2.64045 (82110616)	2.38494 (82102316)	2.47086 (82110516)	2.97340 (82110516)
3105500.0	2.68110 (82110908)	2.22806 (82102316)	2.11412 (82110516)	2.47254 (82110516)	2.73573 (82110516)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	1.69816 (82060216)	1.94986 (82092124)	2.14566 (82082716)	2.60268 (82082716)	2.10832 (82082716)
3107800.0	1.82080 (82060216)	2.14638 (82060616)	2.33068 (82082716)	2.88438 (82082716)	2.21820 (82082716)
3107700.0	2.15638 (82060916)	2.36596 (82060616)	2.52372 (82082716)	3.20036 (82082716)	2.29619 (82082716)
3107600.0	2.65345 (82060916)	2.58740 (82060616)	2.79665 (82060616)	3.54948 (82082716)	2.31550 (82082716)
3107500.0	3.18088 (82060916)	2.78875 (82060616)	3.19851 (82060616)	3.92361 (82082716)	2.23758 (82082716)
3107400.0	3.60622 (82060916)	2.92953 (82060616)	3.63838 (82060616)	4.29867 (82082716)	2.26948 (82050816)
3107300.0	3.67216 (82060916)	3.69657 (82060916)	4.07174 (82060616)	4.61357 (82082716)	2.60841 (82050816)
3107200.0	3.54052 (82080816)	4.59664 (82060916)	4.38192 (82060616)	4.72276 (82082716)	2.62738 (82040816)
3107100.0	3.59606 (82080816)	4.90735 (82060916)	4.30924 (82060616)	4.31425 (82082716)	2.62219 (82040816)
3107000.0	3.62302 (82080616)	3.55466 (82080816)	3.51160 (82060616)	3.04363 (82082716)	2.95444 (82052916)
3106900.0	2.47782 (82060316)	2.94088 (82080616)	2.94295 (82060916)	2.58320 (82040316)	2.31650 (82021616)
3106800.0	3.67057 (82040216)	3.33449 (82040216)	3.99301 (82060916)	5.72281 (82040816)	4.80844 (82061808)
3106700.0	2.81621 (82050616)	3.07674 (82050616)	2.35842 (82040216)	6.46934 (82061808)	1.98873 (82070416)
3106600.0	2.61013 (82112116)	3.23847 (82050316)	1.09159 (82050416)	4.56963 (82011416)	5.72632 (82063016)
3106500.0	4.09079 (82043016)	2.10807 (82080416)	1.74710 (82041116)	1.92606 (82022216)	3.74321 (82040616)
3106400.0	2.78551 (82080416)	2.41448 (82102516)	1.50474 (82030816)	1.66086 (82011116)	2.02873 (82040616)
3106300.0	2.88462 (82080416)	2.24902 (82041116)	2.03376 (82021316)	2.23113 (82012416)	2.08089 (82022216)
3106200.0	2.71702 (82102516)	2.80171 (82041116)	2.95646 (82021316)	2.91158 (82012416)	3.81373 (82022216)
3106100.0	2.79564 (82110516)	2.67475 (82041116)	3.56082 (82021316)	3.01308 (82012416)	4.06288 (82022216)
3106000.0	3.50689 (82110516)	2.41237 (82110516)	3.81731 (82021316)	2.81415 (82012416)	3.06094 (82022216)
3105900.0	3.56160 (82110516)	2.86111 (82102416)	3.82242 (82021316)	2.71083 (82110508)	2.95757 (82012416)
3105800.0	3.26276 (82110516)	3.09891 (82102416)	3.67797 (82021316)	2.74147 (82110508)	2.79533 (82012416)
3105700.0	2.84123 (82110516)	3.08062 (82102416)	3.45784 (82021316)	2.67377 (82110508)	2.51540 (82012416)
3105600.0	2.39675 (82110516)	2.90864 (82102416)	3.19835 (82021316)	2.54774 (82110508)	2.20248 (82012416)
3105500.0	2.51579 (82102416)	2.69443 (82102416)	2.93773 (82021316)	2.40237 (82110508)	1.91062 (82012416)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	2.08663 (82050816)	3.10127 (82050816)	2.29490 (82011316)	2.43026 (82012316)	2.18146 (82012316)
3107800.0	2.56370 (82050816)	3.01057 (82050816)	2.43395 (82032416)	2.54202 (82012316)	3.04238 (82040524)
3107700.0	3.08025 (82050816)	2.66700 (82011316)	2.76077 (82012316)	2.63093 (82040524)	3.59421 (82040524)
3107600.0	3.46055 (82050816)	2.58352 (82032416)	2.90071 (82012316)	3.68222 (82040524)	3.72824 (82020916)
3107500.0	3.33516 (82050816)	3.12276 (82032416)	3.15117 (82040524)	3.87624 (82040524)	4.89859 (82040824)
3107400.0	2.55284 (82011316)	3.05390 (82012316)	4.16843 (82040524)	4.85295 (82040824)	4.60461 (82040824)
3107300.0	3.09839 (82032416)	3.40891 (82040524)	4.45132 (82020916)	5.22869 (82040824)	2.46735 (82040824)
3107200.0	3.08962 (82032416)	3.89062 (82020916)	5.54641 (82040824)	2.63784 (82022516)	3.28145 (82022516)
3107100.0	2.92550 (82052916)	4.91473 (82040824)	2.92347 (82022516)	3.68631 (82022516)	2.99965 (82022516)
3107000.0	2.80421 (82062116)	2.80461 (82022516)	3.65300 (82022516)	2.64865 (82022516)	2.48552 (82042216)
3106900.0	2.64589 (82061808)	2.80706 (82072116)	3.19902 (82042216)	2.94769 (82042716)	2.97388c(82012016)
3106800.0	2.32809 (82071116)	2.82723 (82042716)	3.35556 (82042716)	3.55059 (82042716)	3.44061 (82042716)
3106700.0	2.67635 (82042716)	2.59892 (82042716)	3.17583 (82052716)	3.42828 (82052716)	3.37680 (82052716)
3106600.0	4.18880 (82061016)	3.21107 (82061016)	3.61002 (82070416)	3.83764 (82070416)	3.75804 (82070116)
3106500.0	5.08641 (82011416)	4.97799 (82063016)	5.37754 (82063016)	4.33335 (82061016)	4.16309 (82061016)
3106400.0	2.89148 (82032616)	2.79641 (82011416)	3.84495 (82011416)	5.14264 (82063016)	5.27597 (82063016)
3106300.0	2.33627 (82032616)	3.21759 (82032616)	3.21371 (82121216)	3.77216 (82022116)	3.22992 (82022116)
3106200.0	2.26511 (82022216)	2.89761 (82032616)	3.25640 (82121216)	4.26459 (82121216)	3.37547 (82022116)
3106100.0	3.16695 (82022216)	2.49316 (82022216)	2.68999 (82032616)	3.44701 (82121216)	4.50366 (82121216)
3106000.0	3.89001 (82022216)	2.63133 (82022216)	2.55900 (82032616)	2.30148 (82032616)	3.31955 (82121216)
3105900.0	4.19407 (82022216)	2.88798 (82022216)	2.39587 (82022216)	2.27226 (82032616)	2.10140 (82012616)
3105800.0	3.90893 (82022216)	3.10448 (82022216)	2.39280 (82022816)	2.14481 (82022216)	2.36579 (82121624)
3105700.0	3.20305 (82022216)	3.23772 (82022216)	2.37526 (82022216)	2.19925 (82022816)	1.91723 (82030116)
3105600.0	2.39970 (82022216)	3.22386 (82022216)	2.42444 (82022216)	2.24947 (82022816)	1.93670 (82022816)
3105500.0	2.19900 (82012416)	3.00919 (82022216)	2.47135 (82022216)	2.05301 (82022816)	2.09064 (82022824)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	3.09992 (82040524)	2.87286 (82020916)	3.41624 (82040824)	3.22913 (82040824)	2.21496 (82040824)
3107800.0	3.15655 (82040524)	3.50958 (82040824)	3.65889 (82040824)	2.52989 (82040824)	1.50715 (82040824)
3107700.0	3.41850 (82040824)	4.12154 (82040824)	2.91222 (82040824)	1.66691 (82040824)	1.68012 (82062424)
3107600.0	4.57071 (82040824)	3.37766 (82040824)	1.84810 (82040824)	1.72723 (82062424)	1.70065 (82022516)
3107500.0	3.94140 (82040824)	2.05067 (82040824)	1.96640 (82022516)	1.97432 (82022516)	1.76665 (82022516)
3107400.0	2.27009 (82040824)	2.34314 (82022516)	2.28623 (82022516)	1.96598 (82022516)	1.96182c(82031624)
3107300.0	2.79167 (82022516)	2.61599 (82022516)	2.13912 (82022516)	1.66653 (82022516)	1.53453 (82081516)
3107200.0	2.90207 (82022516)	2.22802 (82022516)	1.83242 (82081516)	1.78184 (82081516)	1.67206 (82112416)
3107100.0	2.13378 (82022516)	2.14784 (82081516)	2.09057 (82112416)	2.01239 (82112416)	1.76442 (82112416)
3107000.0	2.56648 (82112416)	2.41866 (82112416)	2.26847c(82012016)	2.15154c(82012016)	1.92361c(82012016)
3106900.0	2.95781c(82012016)	2.61827c(82012016)	2.19684 (82042716)	2.00317 (82042716)	1.81572 (82042716)
3106800.0	3.14890 (82042716)	2.79073 (82042716)	2.53953 (82032516)	2.43473 (82032516)	2.28048 (82032516)
3106700.0	3.19093 (82052716)	2.95453 (82052716)	2.70810 (82052716)	2.52558 (82011416)	2.39809 (82011416)
3106600.0	3.61137 (82070116)	3.38759 (82070116)	3.13140 (82070116)	2.86346 (82070116)	2.60950 (82070116)
3106500.0	3.62077 (82061016)	3.07616 (82061816)	2.67365 (82061816)	2.31321 (82070416)	2.17413 (82061324)
3106400.0	4.25000 (82063016)	3.15435 (82063016)	2.81232 (82061816)	2.88559 (82061816)	2.80806 (82061816)
3106300.0	3.94177 (82063016)	4.14463 (82063016)	3.63830 (82063016)	2.89696 (82063016)	2.22929 (82063016)
3106200.0	3.56871 (82022116)	2.76230 (82022116)	2.93022 (82063016)	3.13420 (82063016)	2.92993 (82063016)
3106100.0	2.99688 (82121216)	3.29388 (82022116)	2.89937 (82022116)	2.23815 (82022116)	2.21897 (82063016)
3106000.0	4.30881 (82121216)	3.35816 (82121216)	2.74439 (82022116)	2.77786 (82022116)	2.31594 (82022116)
3105900.0	3.05195 (82121216)	3.91340 (82121216)	3.40354 (82121216)	2.20473 (82022116)	2.47631 (82022116)
3105800.0	2.06326 (82012616)	2.76161 (82121216)	3.51540 (82121216)	3.28469 (82121216)	2.26550 (82121216)
3105700.0	2.28161 (82121624)	1.96718 (82012616)	2.49498 (82121216)	3.14802 (82121216)	3.08692 (82121216)
3105600.0	1.94173 (82121624)	2.12134 (82121624)	1.84670 (82012616)	2.25689 (82121216)	2.82116 (82121216)
3105500.0	1.76179 (82030124)	1.97962 (82121624)	1.93351 (82121624)	1.71978 (82012616)	2.09436c(82030224)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	39.96139	(82061805)	AT (	392000.00, 3106700.00)	GC	26.	14.75874	(82050611)	AT (	391800.00, 3106700.00)	GC
2.	38.94611	(82040814)	AT (	392000.00, 3106800.00)	GC	27.	14.73129	(82063014)	AT (	392100.00, 3106600.00)	GC
3.	34.93365	(82011414)	AT (	392000.00, 3106600.00)	GC	28.	14.64799	(82032413)	AT (	392000.00, 3106800.00)	GC
4.	25.96300	(82040513)	AT (	392000.00, 3106800.00)	GC	29.	14.52804	(82062410)	AT (	392100.00, 3106700.00)	GC
5.	24.91757	(82030513)	AT (	392000.00, 3106700.00)	GC	30.	14.46544	(82040613)	AT (	392100.00, 3106400.00)	GC
6.	21.66987	(82040612)	AT (	392000.00, 3106600.00)	GC	31.	14.46040	(82040213)	AT (	391900.00, 3106700.00)	GC
7.	21.32250	(82041913)	AT (	392000.00, 3106700.00)	GC	32.	14.28868	(82080211)	AT (	392100.00, 3106600.00)	GC
8.	20.45560	(82061806)	AT (	392100.00, 3106800.00)	GC	33.	14.21313	(82011417)	AT (	392200.00, 3106500.00)	GC
9.	19.95222	(82011413)	AT (	392200.00, 3106500.00)	GC	34.	14.14840	(82081714)	AT (	392100.00, 3106700.00)	GC
10.	19.50191	(82011414)	AT (	392100.00, 3106500.00)	GC	35.	13.80797	(82042115)	AT (	392200.00, 3106600.00)	GC
11.	19.43777	(82050713)	AT (	392000.00, 3106700.00)	GC	36.	13.71310	(82050611)	AT (	391700.00, 3106700.00)	GC
12.	19.12686	(82072513)	AT (	392000.00, 3106700.00)	GC	37.	13.70284	(82061806)	AT (	392300.00, 3107000.00)	GC
13.	19.00120	(82051512)	AT (	392100.00, 3106600.00)	GC	38.	13.56414	(82061014)	AT (	392100.00, 3106600.00)	GC
14.	18.00978	(82061805)	AT (	392100.00, 3106800.00)	GC	39.	13.44255	(82072513)	AT (	392100.00, 3106800.00)	GC
15.	17.73389	(82040612)	AT (	392100.00, 3106500.00)	GC	40.	13.36215	(82050713)	AT (	392100.00, 3106800.00)	GC
16.	17.29106	(82040312)	AT (	392000.00, 3106900.00)	GC	41.	13.09435	(82040817)	AT (	392000.00, 3106800.00)	GC
17.	16.88955	(82080212)	AT (	392100.00, 3106600.00)	GC	42.	13.04511	(82061806)	AT (	392200.00, 3106900.00)	GC
18.	16.83592	(82061112)	AT (	392100.00, 3106600.00)	GC	43.	12.94577	(82080515)	AT (	391900.00, 3106800.00)	GC
19.	15.96613	(82040312)	AT (	392000.00, 3106800.00)	GC	44.	12.86726	(82032612)	AT (	392100.00, 3106500.00)	GC
20.	15.89420	(82040512)	AT (	392100.00, 3106800.00)	GC	45.	12.83766	(82050614)	AT (	391800.00, 3106800.00)	GC
21.	15.80022	(82040213)	AT (	391800.00, 3106800.00)	GC	46.	12.78143	(82032613)	AT (	392100.00, 3106500.00)	GC
22.	15.57459	(82070412)	AT (	392100.00, 3106700.00)	GC	47.	12.63697	(82011413)	AT (	392300.00, 3106400.00)	GC
23.	15.33267	(82061807)	AT (	392300.00, 3106800.00)	GC	48.	12.59112	(82041913)	AT (	392100.00, 3106800.00)	GC
24.	14.85042	(82061514)	AT (	392000.00, 3106800.00)	GC	49.	12.59099	(82070412)	AT (	392200.00, 3106700.00)	GC
25.	14.76720	(82060914)	AT (	391900.00, 3106800.00)	GC	50.	12.47929	(82040512)	AT (	392000.00, 3106700.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	6.46934	(82061808)	AT (	392000.00, 3106700.00)	GC	26.	4.72545	(82110716)	AT (	391400.00, 3106100.00)	GC
2.	5.72632	(82063016)	AT (	392100.00, 3106600.00)	GC	27.	4.72276	(82082716)	AT (	392000.00, 3107200.00)	GC
3.	5.72281	(82040816)	AT (	392000.00, 3106800.00)	GC	28.	4.68294	(82032816)	AT (	391100.00, 3106400.00)	GC
4.	5.55044	(82050316)	AT (	391500.00, 3106400.00)	GC	29.	4.66319	(82050516)	AT (	391400.00, 3106400.00)	GC
5.	5.54641	(82040824)	AT (	392400.00, 3107200.00)	GC	30.	4.65345	(82042316)	AT (	391400.00, 3106300.00)	GC
6.	5.37754	(82063016)	AT (	392400.00, 3106500.00)	GC	31.	4.61638	(82043016)	AT (	391400.00, 3106300.00)	GC
7.	5.27597	(82063016)	AT (	392600.00, 3106400.00)	GC	32.	4.61357	(82082716)	AT (	392000.00, 3107300.00)	GC
8.	5.22869	(82040824)	AT (	392500.00, 3107300.00)	GC	33.	4.60461	(82040824)	AT (	392600.00, 3107400.00)	GC
9.	5.21401	(82080216)	AT (	392100.00, 3106600.00)	GC	34.	4.59664	(82060916)	AT (	391800.00, 3107200.00)	GC
10.	5.14264	(82063016)	AT (	392500.00, 3106400.00)	GC	35.	4.58406	(82043016)	AT (	391500.00, 3106400.00)	GC
11.	5.08641	(82011416)	AT (	392200.00, 3106500.00)	GC	36.	4.57071	(82040824)	AT (	392700.00, 3107600.00)	GC
12.	5.02727	(82060416)	AT (	391400.00, 3107100.00)	GC	37.	4.56963	(82011416)	AT (	392000.00, 3106600.00)	GC
13.	4.97799	(82063016)	AT (	392300.00, 3106500.00)	GC	38.	4.51058	(82110716)	AT (	391500.00, 3106200.00)	GC
14.	4.94099	(82050316)	AT (	391400.00, 3106400.00)	GC	39.	4.50368	(82110716)	AT (	391300.00, 3106000.00)	GC
15.	4.91473	(82040824)	AT (	392300.00, 3107100.00)	GC	40.	4.50366	(82121216)	AT (	392600.00, 3106100.00)	GC
16.	4.90735	(82060916)	AT (	391800.00, 3107100.00)	GC	41.	4.47524	(82110716)	AT (	391400.00, 3106000.00)	GC
17.	4.89859	(82040824)	AT (	392600.00, 3107500.00)	GC	42.	4.47274	(82032816)	AT (	391200.00, 3106400.00)	GC
18.	4.87226	(82042316)	AT (	391200.00, 3106200.00)	GC	43.	4.45132	(82020916)	AT (	392400.00, 3107300.00)	GC
19.	4.85295	(82040824)	AT (	392500.00, 3107400.00)	GC	44.	4.43215	(82060416)	AT (	391500.00, 3107000.00)	GC
20.	4.83592	(82050316)	AT (	391400.00, 3106300.00)	GC	45.	4.41008	(82043016)	AT (	391600.00, 3106400.00)	GC
21.	4.82687	(82060416)	AT (	391300.00, 3107200.00)	GC	46.	4.40205	(82110716)	AT (	391300.00, 3105900.00)	GC
22.	4.80844	(82061808)	AT (	392100.00, 3106800.00)	GC	47.	4.40017	(82042316)	AT (	391500.00, 3106400.00)	GC
23.	4.80420	(82050316)	AT (	391300.00, 3106300.00)	GC	48.	4.39921	(82051416)	AT (	391400.00, 3107000.00)	GC
24.	4.79236	(82042316)	AT (	391300.00, 3106300.00)	GC	49.	4.38192	(82060616)	AT (	391900.00, 3107200.00)	GC
25.	4.74021	(82040216)	AT (	391500.00, 3106900.00)	GC	50.	4.37093	(82121516)	AT (	391500.00, 3107000.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	39.96139	ON 82061805:	AT (392000.00, 3106700.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	6.46934	ON 82061808:	AT (392000.00, 3106700.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 436 Informational Message(s)

A Total of 435 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISC MODEL RESULTS
CO 1- AND 8-HOUR
100 METER GRID
YEAR: 1983

```
NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
```

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
8. "Upper Bound" Values for Supersquat Buildings.
9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 2 Short Term Average(s) of: 1-HR 8-HR

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: CO

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: S30C083.dta ; **Output Print File: S30C083.lst
**File for Saving Result Arrays: CO.SAV
**Detailed Error/Message File: S30C083a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.74000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.3,	0	2	4.9,	10.0,	0	3	4.9,	11.4,	0	4	4.9,	12.5,	0	5	4.9,	12.7,	0	6	4.6,	36.9,	0
7	4.6,	37.8,	0	8	4.6,	37.8,	0	9	4.6,	15.7,	0	10	4.6,	18.9,	0	11	4.6,	23.4,	0	12	4.6,	27.1,	0
13	4.6,	45.4,	0	14	4.6,	45.0,	0	15	4.6,	43.4,	0	16	4.6,	40.5,	0	17	4.6,	36.3,	0	18	4.6,	31.9,	0
19	4.6,	32.3,	0	20	4.6,	32.6,	0	21	4.6,	32.6,	0	22	4.6,	32.0,	0	23	4.6,	34.9,	0	24	4.6,	36.9,	0
25	4.6,	37.8,	0	26	4.6,	37.8,	0	27	4.6,	15.7,	0	28	4.6,	18.9,	0	29	4.6,	23.4,	0	30	4.6,	27.1,	0
31	4.6,	45.4,	0	32	4.6,	45.0,	0	33	4.6,	43.4,	0	34	4.6,	40.5,	0	35	4.6,	36.3,	0	36	4.6,	31.9,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
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1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: ltampa83.bin FORMAT: UNFORM
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1983 YEAR: 1983

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN
83	1	1	1	261.0	4.12	292.6	4	996.0	996.0
83	1	1	2	248.0	3.60	292.6	4	996.0	996.0
83	1	1	3	284.0	3.09	292.6	4	996.0	996.0
83	1	1	4	273.0	3.60	292.6	4	996.0	996.0
83	1	1	5	253.0	3.09	292.6	4	996.0	996.0
83	1	1	6	242.0	2.57	292.6	4	996.0	996.0
83	1	1	7	225.0	2.57	292.6	4	996.0	996.0
83	1	1	8	243.0	3.09	292.6	4	996.0	996.0
83	1	1	9	247.0	3.09	292.6	4	996.0	996.0
83	1	1	10	231.0	3.09	292.6	4	996.0	996.0
83	1	1	11	254.0	3.09	294.3	4	996.0	996.0
83	1	1	12	276.0	3.09	295.9	4	996.0	996.0
83	1	1	13	253.0	3.60	296.5	4	996.0	996.0
83	1	1	14	269.0	2.06	297.6	3	996.0	996.0
83	1	1	15	302.0	3.60	298.7	3	996.0	996.0
83	1	1	16	214.0	4.12	298.2	4	996.0	996.0
83	1	1	17	231.0	3.09	297.0	4	996.0	996.0
83	1	1	18	237.0	4.12	295.9	4	999.0	999.0
83	1	1	19	234.0	3.60	294.3	4	1008.0	1008.0
83	1	1	20	247.0	3.60	294.3	4	1016.0	1016.0
83	1	1	21	260.0	4.12	293.7	4	1025.0	1025.0
83	1	1	22	272.0	3.60	293.7	4	1034.0	1034.0
83	1	1	23	260.0	3.09	293.7	4	1042.0	1042.0
83	1	1	24	280.0	3.09	293.7	4	1051.0	1051.0

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	4.68343 (83051408)	5.02663 (83082520)	6.22915 (83040208)	5.41755 (83030518)	5.56473 (83060321)
3107800.0	6.17123 (83042307)	5.01805 (83051409)	5.39754 (83040709)	6.36568 (83040208)	5.82005 (83051510)
3107700.0	8.05432 (83042307)	6.81626 (83042307)	5.50697 (83112711)	5.83801 (83040709)	6.32192 (83040208)
3107600.0	6.21519 (83042307)	8.44445 (83042307)	7.52562 (83042307)	6.09776 (83112711)	6.28707 (83032614)
3107500.0	6.94615 (83051906)	5.80558 (83041410)	8.62457 (83042307)	8.27385 (83042307)	6.76963 (83112711)
3107400.0	7.81690 (83051906)	7.93558 (83051906)	6.32580 (83032615)	8.42609 (83042307)	8.99750 (83042307)
3107300.0	7.38679 (83052206)	6.67119 (83021008)	8.16263 (83051906)	6.86662 (83051906)	7.62829 (83042307)
3107200.0	6.06115 (83051120)	6.70393 (83052206)	7.05856 (83052206)	7.03872 (83021008)	7.75738 (83022114)
3107100.0	6.13284 (83051321)	6.54170 (83022113)	6.95037 (83012013)	7.39806 (83012007)	7.93583 (83032611)
3107000.0	6.19588 (83012020)	6.67247 (83022010)	7.03416 (83012008)	7.46707 (83022801)	7.88292 (83022012)
3106900.0	6.46271 (83051812)	6.79299 (83012015)	7.35033 (83051820)	7.90368 (83022716)	8.44639 (83022717)
3106800.0	6.46702 (83082618)	6.84027 (83022018)	7.41222 (83022719)	7.89875 (83022719)	8.39520 (83022711)
3106700.0	6.57443 (83051118)	7.02052 (83051118)	7.46003 (83051118)	7.81191 (83051118)	8.30898 (83092415)
3106600.0	6.50680 (83092414)	7.04625 (83092414)	7.60087 (83092414)	8.10325 (83092414)	8.41617 (83092414)
3106500.0	6.47922 (83092411)	6.98602 (83051116)	7.52101 (83072817)	8.10011 (83072817)	8.39530 (83081821)
3106400.0	6.40160 (83092513)	6.72443 (83092513)	7.42422 (83092416)	7.88613 (83022623)	8.64756 (83022619)
3106300.0	6.31552 (83092510)	6.63674 (83092410)	7.18696 (83051821)	7.32990 (83060917)	7.66047 (83092313)
3106200.0	6.57688 (83061106)	6.43836 (83022701)	6.99863 (83092313)	7.57195 (83062319)	7.76216 (83022616)
3106100.0	6.06082 (83092313)	6.41612 (83062319)	6.67986 (83022616)	7.18330 (83110112)	8.22479 (83121717)
3106000.0	5.88368 (83101714)	6.22948 (83110112)	6.57825 (83092518)	9.59121 (83121717)	9.20734 (83121717)
3105900.0	5.71695 (83110116)	7.46090 (83121717)	9.65710 (83121717)	8.83420 (83121716)	10.58189 (83121716)
3105800.0	8.19983 (83121717)	8.97100 (83121717)	9.24598 (83121716)	9.96651 (83121716)	6.63115 (83102119)
3105700.0	7.97169 (83121717)	9.24279 (83121716)	9.24906 (83121716)	6.11108 (83102119)	6.42167 (83121714)
3105600.0	8.98794 (83121716)	8.52427 (83121716)	5.61935 (83102119)	5.77742 (83092402)	9.30029 (83121714)
3105500.0	7.83790 (83121716)	5.16797 (83102119)	5.37538 (83092402)	8.44374 (83121714)	8.14156 (83121714)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	8.05007 (83112808)	6.64368 (83112808)	5.87449 (83112408)	6.15271 (83112714)	6.67850 (83031607)
3107800.0	6.09927 (83112808)	8.35318 (83112808)	6.34855 (83020121)	6.58748 (83022213)	6.56385 (83112313)
3107700.0	6.34927 (83020113)	7.72100 (83112808)	7.00908 (83112808)	6.72099 (83051913)	7.12734 (83122811)
3107600.0	6.68825 (83040909)	6.94482 (83020111)	8.46747 (83112808)	7.20777 (83020121)	7.40414 (83022213)
3107500.0	7.05806 (83030511)	7.35128 (83020122)	7.70031 (83051912)	7.80297 (83020203)	8.26829 (83030721)
3107400.0	7.51808 (83112711)	7.94531 (83052009)	8.13313 (83030523)	8.45696 (83020114)	7.47405 (83020121)
3107300.0	9.52684 (83042307)	8.27460 (83032404)	8.78841 (83052010)	9.09534 (83051911)	8.22476 (83020203)
3107200.0	7.80712 (83021009)	9.21347 (83042307)	8.92906 (83032404)	10.52670 (83052010)	8.04057 (83020114)
3107100.0	8.15122 (83051811)	8.31553 (83022114)	8.42312 (83021922)	8.93486 (83032404)	11.94821 (83051910)
3107000.0	9.27943 (83022714)	10.07566 (83022713)	8.94545 (83022114)	8.86459 (83041312)	10.08071 (83091916)
3106900.0	9.18689 (83022712)	9.89509 (83022712)	10.73007 (83022714)	13.98498 (83022713)	11.11745 (83032612)
3106800.0	9.62660 (83022711)	9.44114 (83022711)	12.97529 (83022709)	14.13540 (83022712)	10.86446 (83032613)
3106700.0	8.71077 (83092415)	8.61144 (83092415)	8.96245 (83092514)	9.06935 (83051112)	7.45836 (83051112)
3106600.0	8.44515 (83022702)	8.03815 (83092312)	8.83650 (83092312)	8.71383 (83092312)	8.73093 (83092413)
3106500.0	7.83176 (83081821)	9.52130 (83022623)	9.92141 (83022619)	8.64899 (83051821)	7.97742 (83061216)
3106400.0	9.38896 (83051821)	7.94541 (83051821)	8.77026 (83030712)	9.09635 (83061216)	8.38606 (83072816)
3106300.0	8.60016 (83062319)	8.50588 (83030712)	8.65277 (83062418)	8.73784 (83110110)	9.12750 (83092615)
3106200.0	8.75033 (83062418)	9.17675 (83121717)	8.63554 (83021303)	8.20805 (83092615)	8.07032 (83032513)
3106100.0	10.04812 (83121717)	10.07612 (83121716)	7.34211 (83102119)	8.30680 (83121714)	8.41122 (83123113)
3106000.0	10.89428 (83121716)	7.49229 (83102119)	8.96327 (83121714)	8.34602 (83123103)	7.65085 (83070718)
3105900.0	7.14812 (83102119)	8.49687 (83121714)	8.73370 (83121714)	7.66218 (83123114)	9.05308 (83070718)
3105800.0	7.44221 (83121714)	9.94398 (83121714)	7.57226 (83082509)	7.19390 (83053012)	7.65563 (83053010)
3105700.0	9.91516 (83121714)	6.75366 (83082509)	6.77208 (83123110)	7.52577 (83070718)	7.53580 (83123112)
3105600.0	7.38015 (83121714)	6.48329 (83092918)	6.36923 (83061419)	6.70652 (83041608)	6.86458 (83123018)
3105500.0	6.01044 (83082509)	5.98351 (83123110)	6.27598 (83061419)	6.53949 (83053010)	6.54840 (83041710)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	7.32737 (83031607)	6.44089 (83051410)	6.48739 (83042309)	6.49185 (83030613)	6.44533 (83051608)
3107800.0	7.92551 (83031607)	6.83718 (83020602)	6.93504 (83031719)	6.81094 (83030613)	6.90160 (83031713)
3107700.0	7.97032 (83031607)	7.43820 (83031716)	7.41920 (83031719)	7.25111 (83122810)	7.39137 (83031713)
3107600.0	7.77847 (83101311)	8.11012 (83042310)	7.84443 (83031719)	7.99336 (83060710)	8.09109 (83040213)
3107500.0	7.58416 (83101311)	8.75898 (83020603)	8.08659 (83031719)	9.14371 (83060710)	8.57389 (83032021)
3107400.0	8.02201 (83122811)	9.05723 (83020603)	7.99565 (83031719)	10.32977 (83060710)	8.93475 (83032021)
3107300.0	8.70239 (83030721)	8.45700 (83030611)	8.16452 (83050313)	11.30455 (83060710)	9.86778 (83101310)
3107200.0	8.72909 (83041413)	9.07268 (83041314)	9.20743 (83050313)	11.48976 (83060710)	11.76389 (83101310)
3107100.0	9.90916 (83052012)	9.04952 (83100815)	10.39648 (83040212)	10.42841 (83042311)	10.86642 (83101310)
3107000.0	11.29600 (83072116)	9.26404 (83041413)	12.98631 (83040212)	8.82629 (83073015)	11.07543 (83060713)
3106900.0	11.38109 (83091916)	12.53982 (83072116)	17.89574 (83040212)	11.87419 (83051612)	10.78792 (83051611)
3106800.0	18.58979 (83022713)	18.86325 (83091916)	13.98216 (83041314)	18.15053 (83060713)	13.31332 (83051714)
3106700.0	16.06899 (83022709)	45.83669 (83022709)	17.41783 (83091916)	20.98214 (83051714)	29.20490 (83032405)
3106600.0	15.87480 (83092413)	13.42227 (83092413)	5.47751 (83072816)	49.35124 (83072916)	21.64311 (83042411)
3106500.0	8.83173 (83101813)	10.82883 (83072816)	16.69678 (83041711)	18.88597 (83041115)	19.83764 (83072916)
3106400.0	7.54358 (83092615)	6.67748 (83061615)	8.98459 (83120713)	16.94560 (83082511)	13.30069 (83033113)
3106300.0	8.54422 (83032513)	9.06186 (83041711)	8.33442 (83080319)	11.47126 (83041713)	9.75003 (83122924)
3106200.0	8.24459 (83061615)	9.76586 (83041711)	11.78045 (83080319)	10.03470 (83041011)	9.64096 (83041013)
3106100.0	9.53684 (83070718)	8.47188 (83092611)	12.26120 (83080319)	8.84232 (83050515)	8.84347 (83041615)
3106000.0	8.75114 (83123112)	8.08278 (83123104)	11.35843 (83080319)	8.02857 (83050515)	7.82011 (83011211)
3105900.0	7.60578 (83123018)	8.59320 (83123104)	10.04114 (83080319)	7.68614 (83020410)	8.33951 (83011211)
3105800.0	7.87949 (83041710)	8.23422 (83021717)	8.91568 (83011209)	7.72656 (83020410)	8.35571 (83011210)
3105700.0	7.60304 (83050410)	7.86921 (83021717)	8.01947 (83011209)	7.42423 (83020410)	8.05366 (83033111)
3105600.0	7.32765 (83082510)	7.19171 (83041602)	7.18376 (83011209)	7.13505 (83021713)	7.28347 (83033111)
3105500.0	6.62761 (83082510)	6.83582 (83041602)	6.69450 (83123005)	6.78837 (83021713)	6.74912 (83010314)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	6.27325 (83031717)	7.99756 (83101310)	7.82165 (83101310)	5.92387 (83031711)	5.92572 (83112416)
3107800.0	6.82034 (83060715)	9.03338 (83101310)	7.29882 (83101310)	6.45806 (83051614)	6.19666 (83012712)
3107700.0	7.70656 (83101310)	9.68461 (83101310)	7.09161 (83062917)	6.93014 (83041513)	6.66920 (83040814)
3107600.0	9.56685 (83101310)	9.53955 (83101310)	7.30547 (83051614)	7.32258 (83042317)	6.94012 (83062114)
3107500.0	11.28843 (83101310)	8.50135 (83042313)	8.27340 (83112413)	7.80043 (83040211)	7.39354 (83040815)
3107400.0	12.06870 (83101310)	8.41857 (83031711)	8.96014 (83042315)	8.44374 (83031721)	9.96735 (83091413)
3107300.0	10.71911 (83101310)	10.04183 (83112413)	9.09139 (83040211)	9.14298 (83091413)	6.99486 (83032101)
3107200.0	9.00059 (83031711)	9.96453 (83040211)	9.59199 (83042312)	7.58504 (83032101)	8.77651 (83041817)
3107100.0	9.73429 (83112413)	11.29391 (83031721)	8.11013 (83052212)	9.48239 (83041817)	7.91677 (83051615)
3107000.0	11.95526 (83031721)	8.44536 (83052212)	9.35634 (83120614)	8.01068 (83031915)	7.74254 (83032409)
3106900.0	7.83475 (83051714)	9.41425 (83041812)	9.67383 (83090114)	8.58013 (83052315)	9.17185 (83042322)
3106800.0	12.91909 (83090114)	9.96616 (83041814)	14.42673 (83032405)	10.49727 (83112419)	10.62407 (83112419)
3106700.0	19.55272 (83032413)	13.27980 (83032413)	13.27890 (83032414)	12.29279 (83032414)	10.66196 (83032414)
3106600.0	19.40908 (83042414)	12.96342 (83031724)	13.45853 (83031724)	12.43122 (83081216)	10.97371 (83081216)
3106500.0	14.32264 (83032418)	11.59569 (83032416)	13.39915 (83121201)	12.53180 (83032417)	10.17266 (83031807)
3106400.0	10.06372 (83042514)	10.64279 (83032113)	12.51582 (83030106)	11.71868 (83020311)	10.59227 (83032416)
3106300.0	9.32471 (83033112)	10.81564 (83032419)	10.19258 (83031111)	11.12085 (83032418)	10.03313 (83030106)
3106200.0	9.33282 (83042511)	9.20423 (83122412)	10.69473 (83032419)	9.22856 (83031111)	9.28746 (83020309)
3106100.0	11.00484 (83122924)	8.84993 (83122411)	8.11402 (83031117)	9.57533 (83032419)	8.32690 (83011514)
3106000.0	9.01534 (83021315)	9.06583 (83021716)	9.01733 (83031115)	8.27898 (83031117)	8.31119 (83032419)
3105900.0	8.62808 (83011208)	8.69860 (83122924)	8.29321 (83020714)	8.14834 (83122416)	7.67032 (83031117)
3105800.0	8.27657 (83020710)	8.19468 (83021314)	8.00912 (83021716)	7.38720 (83092817)	7.19963 (83122412)
3105700.0	7.53589 (83112506)	7.56322 (83021315)	7.34653 (83111613)	7.08554 (83020714)	6.83889 (83050407)
3105600.0	6.90226 (83123001)	7.58912 (83091713)	6.85751 (83092618)	6.70999 (83033114)	6.57337 (83092817)
3105500.0	6.64838 (83011211)	7.46744 (83091713)	6.41346 (83111614)	6.26314 (83022515)	6.03935 (83112504)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	5.76093 (83030615)	5.55866 (83062114)	5.37441 (83040816)	7.42685 (83091413)	7.79252 (83091413)
3107800.0	6.03846 (83040812)	5.83158 (83040816)	7.42014 (83091413)	8.35471 (83091413)	5.62435 (83091413)
3107700.0	6.39783 (83040716)	7.18154 (83091413)	8.92432 (83091413)	5.96039 (83091413)	5.35139 (83010217)
3107600.0	6.77060 (83040717)	9.45476 (83091413)	6.29119 (83091413)	5.67553 (83010217)	5.57580 (83060617)
3107500.0	9.85953 (83091413)	6.58763 (83091413)	6.38123 (83042318)	5.95969 (83041817)	5.80515 (83041815)
3107400.0	6.79955 (83091413)	7.14906 (83042318)	6.55125 (83120614)	6.32251 (83042320)	6.02530 (83051615)
3107300.0	7.86491 (83042318)	7.58189 (83120614)	6.78064 (83051615)	6.49028 (83041819)	6.14853 (83052918)
3107200.0	8.10692 (83120614)	7.59348 (83051615)	6.72313 (83041819)	6.35371 (83032409)	6.36635 (83041816)
3107100.0	7.87368 (83041819)	7.34074 (83032409)	7.37459 (83041816)	6.73242 (83060812)	6.48183 (83020223)
3107000.0	8.55186 (83060812)	7.84750 (83020223)	7.73169 (83042322)	7.14122 (83060721)	6.54849 (83031806)
3106900.0	9.30643 (83071909)	8.17256 (83031806)	7.62891 (83022824)	7.49967 (83110510)	7.58867 (83110510)
3106800.0	9.79842 (83110510)	9.59227 (83110510)	8.91049 (83110510)	8.05035 (83110510)	7.17725 (83110510)
3106700.0	9.62123 (83030104)	8.89554 (83030104)	8.07129 (83030104)	7.42541 (83051517)	6.98258 (83051517)
3106600.0	9.99773 (83030105)	8.88188 (83030105)	8.07048 (83051516)	7.55423 (83051516)	7.02244 (83072515)
3106500.0	9.49855 (83042408)	8.73906 (83042416)	7.96933 (83022311)	7.34430 (83121213)	6.85039 (83052616)
3106400.0	9.43969 (83042413)	8.51357 (83020306)	7.88476 (83022314)	7.17140 (83031816)	6.70098 (83031811)
3106300.0	9.15905 (83020311)	8.30926 (83042417)	7.59713 (83020312)	7.04580 (83032114)	6.56490 (83022316)
3106200.0	8.52604 (83032118)	7.99155 (83021411)	7.36245 (83121214)	6.93757 (83072615)	6.40995 (83030913)
3106100.0	8.06117 (83122413)	7.67833 (83042412)	7.13677 (83032109)	7.00382 (83082912)	6.90927 (83082912)
3106000.0	7.52861 (83020308)	7.39623 (83052717)	6.82539 (83033116)	6.43911 (83122406)	6.10615 (83030915)
3105900.0	7.38606 (83033115)	6.83900 (83020320)	6.67953 (83052717)	6.22237 (83111612)	5.88080 (83021417)
3105800.0	6.89224 (83041016)	6.58805 (83022414)	6.22761 (83020320)	6.02525 (83032104)	5.79156 (83052718)
3105700.0	6.52975 (83122408)	6.33862 (83041017)	6.07087 (83022414)	5.73028 (83042501)	5.50683 (83112817)
3105600.0	6.16975 (83122410)	6.01974 (83011116)	5.77531 (83041017)	5.58286 (83022414)	5.30227 (83102416)
3105500.0	5.79297 (83050407)	5.70203 (83041117)	5.49561 (83041917)	5.29301 (83111617)	5.20656 (83052719)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	2.70673 (83102308)	2.87649 (83112008)	3.28989 (83112008)	3.32447 (83040908)	3.04309 (83040908)
3107800.0	2.44045 (83041408)	2.68725 (83102308)	3.11206 (83112008)	3.43570 (83112008)	3.61222 (83040908)
3107700.0	2.15890 (83030508)	2.44051 (83041408)	2.64364 (83102308)	3.35720 (83112008)	3.51665 (83112008)
3107600.0	2.25412 (83030508)	2.26593 (83030524)	2.40916 (83041408)	2.57621 (83020116)	3.59808 (83112008)
3107500.0	2.16073 (83052008)	2.11975 (83030508)	2.49121 (83030524)	2.33379 (83041408)	2.84504 (83020116)
3107400.0	2.99541 (83122724)	2.22433 (83051908)	2.21507 (83052008)	2.68713 (83030524)	2.46297 (83030524)
3107300.0	3.25767 (83012024)	3.28325 (83122724)	2.74205 (83122724)	2.32820 (83051908)	2.78236 (83030524)
3107200.0	2.58017 (83012024)	3.20348 (83012024)	3.59850 (83012024)	3.23590 (83122724)	2.39158 (83051908)
3107100.0	1.91699 (83022716)	2.08501 (83012024)	2.70678 (83012024)	3.45388 (83012024)	3.79442 (83012024)
3107000.0	3.14707 (83022016)	2.99945 (83022016)	2.86954 (83022716)	2.61617 (83022716)	2.62820 (83012024)
3106900.0	3.28246 (83022016)	3.68737 (83022016)	4.01229 (83022016)	4.13637 (83022016)	4.34115 (83022716)
3106800.0	3.15522 (83022724)	3.35707 (83022724)	3.49906 (83022724)	3.51739 (83022724)	3.70030 (83022016)
3106700.0	2.58432 (83022024)	2.70416 (83022024)	2.82400 (83022024)	2.91317 (83022024)	3.07730 (83022724)
3106600.0	2.56518 (83102816)	2.82122 (83102816)	3.10528 (83102816)	3.40253 (83102816)	3.69342 (83102816)
3106500.0	2.22176 (83051808)	2.31890 (83102816)	2.44311 (83102816)	2.54635 (83102816)	2.74355 (83022624)
3106400.0	2.58718 (83022624)	3.53508 (83022624)	4.65609 (83022624)	5.67429 (83022624)	5.95986 (83022624)
3106300.0	4.46279 (83022624)	4.50007 (83022624)	3.90169 (83022624)	3.66491 (83102016)	3.99643 (83102016)
3106200.0	2.78731 (83102016)	3.14645 (83102016)	3.30687 (83102016)	3.77251 (83092316)	3.62397 (83022616)
3106100.0	2.83549 (83092316)	3.34172 (83092316)	3.32537 (83092316)	3.51907 (83101616)	4.55747 (83121724)
3106000.0	2.95626 (83092316)	2.98902 (83022616)	3.82364 (83121724)	4.73880 (83121724)	4.47239 (83121724)
3105900.0	3.11847 (83121724)	4.11188 (83121724)	4.55205 (83121724)	3.97891 (83121724)	3.14443 (83021224)
3105800.0	4.10745 (83121724)	4.19841 (83121724)	3.49310 (83121724)	2.93717 (83122024)	2.44384 (83102124)
3105700.0	3.79293 (83121724)	3.05600 (83121724)	2.77995 (83122016)	2.38081 (83102124)	2.17727 (83123124)
3105600.0	2.67711 (83121724)	2.67607 (83122016)	2.29885 (83102124)	2.22922 (83123124)	2.00339 (83123124)
3105500.0	2.55654 (83122016)	2.21157c(83090708)	2.23725 (83123124)	2.14367 (83123124)	1.64282 (83113016)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	2.06172 (83122808)	2.04335 (83122808)	2.52893 (83030416)	2.81832 (83030708)	2.33831 (83030708)
3107800.0	2.84532c(83051916)	2.23352 (83122808)	2.58610 (83030416)	2.82739 (83112408)	2.76178 (83030708)
3107700.0	3.78997 (83040908)	2.68977c(83051916)	2.38456 (83030416)	2.95227 (83030416)	3.03323 (83030708)
3107600.0	3.73995 (83040908)	3.73302 (83040908)	2.34203 (83122808)	3.11585 (83030416)	2.98271 (83030708)
3107500.0	3.80703 (83112008)	4.17416 (83040908)	3.70708c(83051916)	2.83172 (83030416)	3.25881 (83030416)
3107400.0	3.13606 (83020116)	3.91654 (83112008)	4.48291c(83051916)	3.08337c(83051916)	3.58441 (83030416)
3107300.0	2.74027 (83030524)	3.39400 (83020116)	3.67897 (83112008)	4.83295c(83051916)	3.16549 (83030416)
3107200.0	2.61656 (83030524)	2.90445 (83030524)	3.50053 (83020116)	4.10839 (83041316)	4.04375c(83051916)
3107100.0	2.79537 (83012024)	2.57276 (83050116)	3.06212 (83050116)	3.26360 (83020116)	4.73753 (83041316)
3107000.0	3.31636 (83012024)	3.29249 (83012024)	2.63595 (83050116)	3.52856 (83050716)	3.64995 (83050116)
3106900.0	4.23546 (83022716)	3.67762 (83022716)	3.36711 (83022716)	2.94138 (83080116)	3.43593 (83050716)
3106800.0	4.17637 (83022016)	4.82548 (83022716)	5.96796 (83022716)	5.69174 (83022716)	3.85094 (83022716)
3106700.0	3.24830 (83022724)	3.41634 (83112216)	3.42721 (83112216)	3.16741 (83051116)	2.72716 (83051116)
3106600.0	3.95416 (83102816)	4.16025 (83051116)	4.27055 (83051116)	3.74239 (83051116)	2.50910 (83102816)
3106500.0	4.13617 (83022624)	5.78393 (83022624)	6.34122 (83022624)	3.78159 (83022624)	3.63078 (83061016)
3106400.0	4.80655 (83022624)	4.47080 (83102016)	4.12854 (83102016)	4.61108 (83061016)	3.19250 (83102116)
3106300.0	3.90747 (83092316)	4.15747 (83101616)	4.60242 (83101616)	3.30410 (83102116)	3.74361 (83072816)
3106200.0	4.33417 (83101616)	4.48836 (83121724)	3.09534 (83121724)	3.42683 (83072816)	3.51630 (83102716)
3106100.0	4.77027 (83121724)	3.27825 (83021224)	2.90696 (83072816)	3.17210 (83102716)	3.51907 (83102716)
3106000.0	3.31536 (83021224)	2.73819 (83112116)	2.69865 (83102716)	3.08366 (83102716)	3.32090 (83102716)
3105900.0	2.54568 (83021224)	2.35162 (83092716)	2.62108 (83102716)	3.59285 (83123116)	2.82796 (83102716)
3105800.0	2.19797 (83092716)	2.20829 (83102716)	3.31172 (83123116)	2.80787 (83123116)	2.83501 (83120716)
3105700.0	1.86071 (83102716)	2.60617 (83123116)	3.09532 (83123116)	2.30200 (83102716)	3.31997 (83120716)
3105600.0	1.91685 (83123116)	2.97060 (83123116)	2.37415 (83123116)	2.19356 (83120716)	3.61702 (83120716)
3105500.0	2.55861 (83123116)	2.55982 (83123116)	1.88375 (83123116)	2.45646 (83120716)	3.69263 (83120716)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	2.63262 (83031608)	1.75475 (83020608)	1.49168 (83031724)	1.49478c(83062124)	2.18198 (83032024)
3107800.0	2.53500 (83031608)	1.99732 (83020608)	1.59482 (83031724)	1.55017c(83062124)	2.52879 (83032024)
3107700.0	2.30381 (83031608)	2.27518 (83020608)	1.69799 (83031724)	1.59958c(83062124)	2.89503 (83032024)
3107600.0	2.24969 (83030708)	2.55354 (83020608)	1.78835 (83031724)	1.70414 (83060716)	3.21529 (83032024)
3107500.0	2.67608 (83030708)	2.74348 (83020608)	1.83922 (83031724)	1.99690 (83060716)	3.36281 (83032024)
3107400.0	2.73822 (83030708)	2.70400 (83020608)	1.89695 (83040116)	2.33133 (83060716)	3.19082 (83032024)
3107300.0	2.90335 (83030416)	2.26587 (83020608)	2.03954 (83040116)	2.67329 (83060716)	3.11111 (83031716)
3107200.0	3.57859 (83041416)	1.74790 (83111416)	2.08457 (83040116)	2.91480 (83060716)	3.33535c(83090216)
3107100.0	3.56590 (83041416)	2.55685 (83041416)	2.28286 (83060616)	2.79706 (83060716)	4.09702c(83090216)
3107000.0	4.44744 (83041316)	3.72458 (83041416)	2.27133 (83060616)	2.39353 (83060616)	3.33723c(83090216)
3106900.0	3.23698 (83050116)	3.80887 (83052016)	2.23781 (83040216)	1.92595 (83060716)	3.44858 (83052916)
3106800.0	2.93267 (83022716)	2.79794 (83041316)	3.22826 (83041416)	5.65019 (83052916)	1.89661 (83051616)
3106700.0	4.30108 (83022716)	11.50380 (83022716)	2.48826c(83091916)	2.62277 (83051716)	3.65063 (83032408)
3106600.0	2.86353 (83092416)	2.22503 (83101916)	1.33955 (83072816)	6.16890 (83072916)	6.52592 (83020316)
3106500.0	2.66431 (83061016)	3.42394 (83072816)	2.19407 (83041716)	6.41168 (83041116)	3.54727 (83042516)
3106400.0	3.09144 (83072816)	2.34722 (83061616)	2.24115 (83120716)	3.66927 (83041116)	2.66043 (83033116)
3106300.0	3.31705 (83102716)	3.23152 (83061616)	2.70772 (83061616)	2.11782 (83041716)	3.60013 (83041116)
3106200.0	3.59431 (83102716)	3.69611 (83120716)	2.53845 (83061616)	2.56654 (83011216)	4.11816 (83041116)
3106100.0	3.13556 (83102716)	4.74511 (83120716)	3.27389 (83122508)	3.01936 (83011216)	3.36552 (83041116)
3106000.0	3.55319 (83120716)	4.53617 (83120716)	3.61973 (83122508)	3.27729 (83123008)	2.64884 (83092216)
3105900.0	4.42730 (83120716)	3.75299 (83120716)	3.61101 (83122508)	3.76223 (83123008)	2.86213 (83011216)
3105800.0	4.71571 (83120716)	4.24349 (83122508)	3.42375 (83122508)	3.98100 (83123008)	3.02241 (83011216)
3105700.0	4.45497 (83120716)	4.40787 (83122508)	3.34312 (83123008)	4.01103 (83123008)	2.92811 (83011216)
3105600.0	3.86398 (83120716)	4.25022 (83122508)	3.27469 (83123008)	3.90094 (83123008)	2.71135 (83011216)
3105500.0	3.19995 (83120716)	3.95115 (83122508)	3.15193 (83123008)	3.72832 (83123008)	2.55143 (83021124)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	2.64484 (83032024)	2.23701 (83031716)	2.38493 (83060724)	2.39683 (83121124)	2.58711 (83121124)
3107800.0	2.56825 (83032024)	2.39675 (83031716)	2.44587 (83060724)	2.67443 (83121124)	2.57667 (83112416)
3107700.0	2.52781 (83031716)	2.47858 (83031716)	2.49128c(83090216)	2.88629 (83112416)	3.62740 (83040816)
3107600.0	2.84173 (83031716)	2.95591c(83090216)	2.72538 (83121124)	3.37929 (83040816)	3.97248 (83040816)
3107500.0	3.02655 (83031716)	3.32185c(83090216)	3.43629 (83112416)	4.47034 (83040816)	3.17749 (83120616)
3107400.0	3.59563c(83090216)	3.32941c(83090216)	4.36106 (83040816)	3.86729 (83040816)	2.99409 (83120616)
3107300.0	4.25837c(83090216)	3.81603 (83112416)	4.63313 (83040816)	3.10596 (83120616)	1.93321 (83120616)
3107200.0	4.18555c(83090216)	4.71811 (83040816)	2.93669 (83120616)	2.25179 (83083016)	2.44795 (83083016)
3107100.0	3.32157 (83112416)	2.74308 (83050816)	2.84558 (83083016)	3.13216 (83083016)	2.74605 (83083016)
3107000.0	2.97787 (83050816)	3.38920 (83083016)	3.83890 (83083016)	2.99842 (83083016)	2.38628 (83041816)
3106900.0	3.26079 (83083016)	3.94929 (83083016)	2.68337 (83041816)	2.61033 (83041816)	2.25298 (83060216)
3106800.0	2.71807 (83041816)	2.43073 (83051716)	2.85773 (83051716)	2.81731 (83071716)	2.48331 (83071716)
3106700.0	4.31064 (83032416)	3.98679 (83032416)	4.00161 (83032416)	4.49768 (83030108)	4.83612 (83030108)
3106600.0	4.36060 (83042416)	3.24703 (83072516)	4.10683 (83072516)	4.58243 (83042408)	4.78502 (83042408)
3106500.0	4.39285 (83032116)	5.51587 (83020316)	5.42576 (83020316)	5.14317 (83031816)	6.90518 (83031816)
3106400.0	2.55580 (83041016)	3.58434 (83031116)	5.11634 (83032116)	5.96586 (83020316)	5.96898 (83020316)
3106300.0	4.11359 (83122416)	3.39285 (83032424)	4.17433 (83031116)	3.72602 (83021416)	4.91432 (83032116)
3106200.0	2.46914 (83042516)	4.56901 (83122416)	3.76766 (83030116)	3.64486 (83031116)	3.87481 (83031116)
3106100.0	3.32679 (83122424)	5.17344 (83122416)	3.62330 (83122416)	4.03280 (83030116)	2.97684 (83031116)
3106000.0	3.39336 (83122424)	2.35671c(83012324)	5.76710 (83122416)	2.96294 (83031116)	3.91996 (83030116)
3105900.0	2.67376 (83020716)	3.30709 (83122424)	3.88096 (83122416)	5.03399 (83122416)	2.58853 (83031116)
3105800.0	2.67408 (83020716)	3.48402 (83122424)	2.49872c(83012324)	4.58172 (83122416)	3.99109 (83122416)
3105700.0	2.44653 (83020716)	2.77192 (83010324)	2.80381 (83122424)	2.70846 (83122416)	4.44653 (83122416)
3105600.0	2.20677 (83092216)	2.28705 (83010324)	3.01859 (83122424)	2.34104c(83012324)	3.33154 (83122416)
3105500.0	2.08340 (83021124)	2.28460 (83012316)	2.67654 (83010324)	2.31131 (83122424)	2.39518 (83031108)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	2.85433 (83040816)	3.11162 (83040816)	2.44116 (83120616)	2.30270 (83120616)	1.81414 (83120616)
3107800.0	3.46660 (83040816)	2.73800 (83040816)	2.54037 (83120616)	2.00421 (83120616)	1.50580 (83040224)
3107700.0	3.33688 (83040816)	2.78755 (83120616)	2.22039 (83120616)	1.61643 (83040224)	1.28905 (83010224)
3107600.0	3.01853 (83120616)	2.46328 (83120616)	1.72910 (83040224)	1.31959 (83120616)	1.40459 (83050408)
3107500.0	2.72852 (83120616)	1.83650 (83040224)	1.39718 (83120616)	1.45420 (83050408)	1.72045c(83052224)
3107400.0	1.92476 (83040224)	1.50933 (83083016)	1.59915 (83042324)	1.81060c(83052224)	1.92230 (83052924)
3107300.0	1.91063 (83083016)	1.87330 (83042324)	1.83607 (83042324)	1.92462 (83041824)	1.87903 (83041824)
3107200.0	2.29715 (83083016)	2.06903 (83041824)	2.16370 (83041824)	1.94251 (83041824)	1.69092 (83041824)
3107100.0	2.34106 (83041824)	2.20594 (83041824)	1.90066 (83041824)	1.70596 (83081216)	1.78251 (83022824)
3107000.0	2.31128 (83081216)	1.95460 (83081216)	2.17195 (83022824)	2.34859 (83022824)	2.27192 (83022824)
3106900.0	2.33476 (83022824)	2.41123 (83022824)	2.13305 (83022824)	1.69941 (83022824)	1.66158c(83052324)
3106800.0	2.11140 (83042116)	2.03386 (83031808)	2.06295c(83052324)	2.02169 (83031808)	1.94351 (83031808)
3106700.0	4.78319 (83030108)	4.53677 (83030108)	4.21174 (83030108)	3.87582 (83030108)	3.56228 (83030108)
3106600.0	4.63711 (83042408)	4.33016 (83042408)	3.96934 (83042408)	3.60525 (83042408)	3.27235 (83042408)
3106500.0	7.08730 (83031816)	6.34481 (83031816)	5.30082 (83031816)	4.27109 (83031816)	3.40103 (83031816)
3106400.0	4.32773 (83020316)	4.28571 (83031816)	5.36108 (83031816)	5.71940 (83031816)	5.56056 (83031816)
3106300.0	4.98648 (83032116)	4.83168 (83020316)	4.02689 (83020316)	3.42109 (83021324)	3.08092 (83021324)
3106200.0	3.39319 (83021416)	4.09341 (83032116)	4.02236 (83032116)	3.76118 (83020316)	3.40400 (83020316)
3106100.0	3.60134 (83031116)	3.03901 (83032124)	3.04064 (83042424)	3.32852 (83032116)	3.25077 (83032116)
3106000.0	2.77731 (83030116)	3.05328 (83031116)	2.75994 (83031116)	2.52628 (83032124)	2.72847 (83042424)
3105900.0	3.63159 (83030116)	2.69416 (83030116)	2.52266 (83031116)	2.58567 (83031116)	2.29564 (83032124)
3105800.0	2.53897 (83030116)	3.30840 (83030116)	2.55841 (83030116)	2.08088 (83031116)	2.30295 (83031116)
3105700.0	3.07342 (83122416)	2.44252 (83030116)	3.00725 (83030116)	2.40214 (83030116)	2.17128c(83041108)
3105600.0	3.93358 (83122416)	2.35934 (83122416)	2.31731 (83030116)	2.73548 (83030116)	2.24230 (83030116)
3105500.0	3.49668 (83122416)	3.32137 (83122416)	1.87995 (83031108)	2.18099 (83030116)	2.49375 (83030116)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	49.35124	(83072916)	AT (	392000.00, 3106600.00)	GC	26.	16.67690	(83031813)	AT (	392200.00, 3106600.00)	GC
2.	45.83669	(83022709)	AT (	391800.00, 3106700.00)	GC	27.	16.59848	(83052911)	AT (	392000.00, 3106800.00)	GC
3.	30.34482	(83022712)	AT (	391800.00, 3106700.00)	GC	28.	16.43369	(83042513)	AT (	392100.00, 3106600.00)	GC
4.	29.20490	(83032405)	AT (	392100.00, 3106700.00)	GC	29.	16.33500	(83033112)	AT (	392000.00, 3106600.00)	GC
5.	21.64311	(83042411)	AT (	392100.00, 3106600.00)	GC	30.	16.29633	(83032417)	AT (	392100.00, 3106600.00)	GC
6.	21.60400	(83121201)	AT (	392100.00, 3106600.00)	GC	31.	16.06899	(83022709)	AT (	391700.00, 3106700.00)	GC
7.	21.25635	(83081012)	AT (	392100.00, 3106700.00)	GC	32.	15.99691	(83041112)	AT (	392000.00, 3106500.00)	GC
8.	20.98214	(83051714)	AT (	392000.00, 3106700.00)	GC	33.	15.96591	(83031015)	AT (	392100.00, 3106600.00)	GC
9.	19.83764	(83072916)	AT (	392100.00, 3106500.00)	GC	34.	15.88266	(83041713)	AT (	392000.00, 3106400.00)	GC
10.	19.55272	(83032413)	AT (	392200.00, 3106700.00)	GC	35.	15.87480	(83092413)	AT (	391700.00, 3106600.00)	GC
11.	19.40908	(83042414)	AT (	392200.00, 3106600.00)	GC	36.	15.76301	(83042514)	AT (	392000.00, 3106600.00)	GC
12.	18.88597	(83041115)	AT (	392000.00, 3106500.00)	GC	37.	15.52732	(83052912)	AT (	392000.00, 3106800.00)	GC
13.	18.86325	(83091916)	AT (	391800.00, 3106800.00)	GC	38.	15.51670	(83042514)	AT (	392100.00, 3106500.00)	GC
14.	18.58979	(83022713)	AT (	391700.00, 3106800.00)	GC	39.	15.49979	(83041012)	AT (	392000.00, 3106600.00)	GC
15.	18.15053	(83060713)	AT (	392000.00, 3106800.00)	GC	40.	15.48847	(83050912)	AT (	392000.00, 3106800.00)	GC
16.	17.99664	(83031722)	AT (	392200.00, 3106700.00)	GC	41.	15.30751	(83041012)	AT (	392100.00, 3106500.00)	GC
17.	17.89574	(83040212)	AT (	391900.00, 3106900.00)	GC	42.	15.18139	(83031813)	AT (	392100.00, 3106600.00)	GC
18.	17.41783	(83091916)	AT (	391900.00, 3106700.00)	GC	43.	14.80471	(83041615)	AT (	392000.00, 3106500.00)	GC
19.	17.41105	(83032416)	AT (	392100.00, 3106600.00)	GC	44.	14.73133	(83041112)	AT (	392000.00, 3106400.00)	GC
20.	17.37527	(83032413)	AT (	392100.00, 3106700.00)	GC	45.	14.70937	(83020314)	AT (	392100.00, 3106600.00)	GC
21.	17.00561	(83052313)	AT (	392000.00, 3106800.00)	GC	46.	14.42673	(83032405)	AT (	392400.00, 3106800.00)	GC
22.	16.94560	(83082511)	AT (	392000.00, 3106400.00)	GC	47.	14.37314	(83041013)	AT (	392000.00, 3106500.00)	GC
23.	16.77090	(83032112)	AT (	392100.00, 3106600.00)	GC	48.	14.32264	(83032418)	AT (	392200.00, 3106500.00)	GC
24.	16.72946	(83042414)	AT (	392100.00, 3106600.00)	GC	49.	14.18242	(83082511)	AT (	392000.00, 3106500.00)	GC
25.	16.69678	(83041711)	AT (	391900.00, 3106500.00)	GC	50.	14.17969	(83032113)	AT (	392200.00, 3106500.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	11.50380	(83022716)	AT (	391800.00, 3106700.00)	GC	26.	5.17344	(83122416)	AT (	392300.00, 3106100.00)	GC
2.	7.08730	(83031816)	AT (	392700.00, 3106500.00)	GC	27.	5.14317	(83031816)	AT (	392500.00, 3106500.00)	GC
3.	6.90518	(83031816)	AT (	392600.00, 3106500.00)	GC	28.	5.11634	(83032116)	AT (	392400.00, 3106400.00)	GC
4.	6.52592	(83020316)	AT (	392100.00, 3106600.00)	GC	29.	5.03399	(83122416)	AT (	392500.00, 3105900.00)	GC
5.	6.41168	(83041116)	AT (	392000.00, 3106500.00)	GC	30.	4.98648	(83032116)	AT (	392700.00, 3106300.00)	GC
6.	6.35398	(83042416)	AT (	392100.00, 3106600.00)	GC	31.	4.91432	(83032116)	AT (	392600.00, 3106300.00)	GC
7.	6.34481	(83031816)	AT (	392800.00, 3106500.00)	GC	32.	4.83612	(83030108)	AT (	392600.00, 3106700.00)	GC
8.	6.34122	(83022624)	AT (	391400.00, 3106500.00)	GC	33.	4.83295c	(83051916)	AT (	391500.00, 3107300.00)	GC
9.	6.16890	(83072916)	AT (	392000.00, 3106600.00)	GC	34.	4.83168	(83020316)	AT (	392800.00, 3106300.00)	GC
10.	5.96898	(83020316)	AT (	392600.00, 3106400.00)	GC	35.	4.82548	(83022716)	AT (	391300.00, 3106800.00)	GC
11.	5.96796	(83022716)	AT (	391400.00, 3106800.00)	GC	36.	4.80655	(83022624)	AT (	391200.00, 3106400.00)	GC
12.	5.96586	(83020316)	AT (	392500.00, 3106400.00)	GC	37.	4.78502	(83042408)	AT (	392600.00, 3106600.00)	GC
13.	5.95986	(83022624)	AT (	391100.00, 3106400.00)	GC	38.	4.78319	(83030108)	AT (	392700.00, 3106700.00)	GC
14.	5.78393	(83022624)	AT (	391300.00, 3106500.00)	GC	39.	4.77027	(83121724)	AT (	391200.00, 3106100.00)	GC
15.	5.76710	(83122416)	AT (	392400.00, 3106000.00)	GC	40.	4.74511	(83120716)	AT (	391800.00, 3106100.00)	GC
16.	5.72296	(83032116)	AT (	392500.00, 3106400.00)	GC	41.	4.73880	(83121724)	AT (	391000.00, 3106000.00)	GC
17.	5.71940	(83031816)	AT (	393000.00, 3106400.00)	GC	42.	4.73753	(83041316)	AT (	391600.00, 3107100.00)	GC
18.	5.69174	(83022716)	AT (	391500.00, 3106800.00)	GC	43.	4.71811	(83040816)	AT (	392300.00, 3107200.00)	GC
19.	5.67429	(83022624)	AT (	391000.00, 3106400.00)	GC	44.	4.71722	(83020316)	AT (	392700.00, 3106300.00)	GC
20.	5.65019	(83052916)	AT (	392000.00, 3106800.00)	GC	45.	4.71571	(83120716)	AT (	391700.00, 3105800.00)	GC
21.	5.56056	(83031816)	AT (	393100.00, 3106400.00)	GC	46.	4.65609	(83022624)	AT (	390900.00, 3106400.00)	GC
22.	5.51587	(83020316)	AT (	392300.00, 3106500.00)	GC	47.	4.63711	(83042408)	AT (	392700.00, 3106600.00)	GC
23.	5.42576	(83020316)	AT (	392400.00, 3106500.00)	GC	48.	4.63313	(83040816)	AT (	392400.00, 3107300.00)	GC
24.	5.36108	(83031816)	AT (	392900.00, 3106400.00)	GC	49.	4.63167c	(83051916)	AT (	391600.00, 3107100.00)	GC
25.	5.30082	(83031816)	AT (	392900.00, 3106500.00)	GC	50.	4.61108	(83061016)	AT (	391500.00, 3106400.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	49.35124	ON 83072916:	AT (392000.00, 3106600.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	11.50380	ON 83022716:	AT (391800.00, 3106700.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 780 Informational Message(s)

A Total of 779 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISC MODEL RESULTS
CO 1- AND 8-HOUR
100 METER GRID
YEAR: 1984

```
NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
```

*** MODELING OPTIONS USED: CONC   RURAL   FLAT   DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
8. "Upper Bound" Values for Supersquat Buildings.
9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 2 Short Term Average(s) of: 1-HR   8-HR

**This Run Includes: 1 Source(s);   1 Source Group(s); and   625 Receptor(s)

**The Model Assumes A Pollutant Type of: CO

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) =   10.00 ;   Decay Coef. =   0.0000   ;   Rot. Angle =   0.0
Emission Units = GRAMS/SECOND   ; Emission Rate Unit Factor =   0.10000E+07
Output Units   = MICROGRAMS/CUBIC-METER

**Input Runstream File: S30CO84.dta   ; **Output Print File: S30CO84.lst
**File for Saving Result Arrays: CO.SAV
**Detailed Error/Message File: S30CO84a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.74000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.3,	0	2	4.9,	10.0,	0	3	4.9,	11.4,	0	4	4.9,	12.5,	0	5	4.9,	12.7,	0	6	4.6,	36.9,	0
7	4.6,	37.8,	0	8	4.6,	37.8,	0	9	4.6,	15.7,	0	10	4.6,	18.9,	0	11	4.6,	23.4,	0	12	4.6,	27.1,	0
13	4.6,	45.4,	0	14	4.6,	45.0,	0	15	4.6,	43.4,	0	16	4.6,	40.5,	0	17	4.6,	36.3,	0	18	4.6,	31.9,	0
19	4.6,	32.3,	0	20	4.6,	32.6,	0	21	4.6,	32.6,	0	22	4.6,	32.0,	0	23	4.6,	34.9,	0	24	4.6,	36.9,	0
25	4.6,	37.8,	0	26	4.6,	37.8,	0	27	4.6,	15.7,	0	28	4.6,	18.9,	0	29	4.6,	23.4,	0	30	4.6,	27.1,	0
31	4.6,	45.4,	0	32	4.6,	45.0,	0	33	4.6,	43.4,	0	34	4.6,	40.5,	0	35	4.6,	36.3,	0	36	4.6,	31.9,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: ltampa84.bin FORMAT: UNFORM
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1984 YEAR: 1984

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN
84	1	1	1	211.0	4.63	273.7	5	779.0	147.0
84	1	1	2	208.0	4.63	273.1	5	779.0	147.0
84	1	1	3	214.0	3.09	272.6	6	779.0	147.0
84	1	1	4	173.0	2.57	270.9	6	779.0	147.0
84	1	1	5	183.0	3.09	270.4	6	779.0	147.0
84	1	1	6	192.0	3.60	270.4	5	779.0	147.0
84	1	1	7	175.0	2.57	269.8	6	779.0	147.0
84	1	1	8	193.0	5.14	270.9	5	75.0	208.0
84	1	1	9	197.0	3.60	274.3	4	192.0	303.0
84	1	1	10	221.0	5.66	278.7	4	309.0	398.0
84	1	1	11	224.0	6.17	282.0	4	427.0	493.0
84	1	1	12	196.0	5.14	284.8	3	544.0	589.0
84	1	1	13	223.0	5.66	286.5	3	662.0	684.0
84	1	1	14	209.0	4.63	287.6	3	779.0	779.0
84	1	1	15	232.0	5.14	288.2	4	779.0	779.0
84	1	1	16	244.0	5.66	288.2	4	779.0	779.0
84	1	1	17	231.0	4.63	287.0	4	779.0	779.0
84	1	1	18	237.0	3.60	285.4	5	785.0	744.0
84	1	1	19	214.0	4.12	283.7	5	802.0	651.0
84	1	1	20	217.0	3.09	282.6	6	818.0	557.0
84	1	1	21	220.0	4.63	282.0	5	835.0	464.0
84	1	1	22	222.0	4.63	280.9	5	851.0	371.0
84	1	1	23	220.0	4.12	279.8	5	868.0	278.0
84	1	1	24	190.0	3.60	279.3	5	884.0	185.0

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	4.82249 (84030508)	4.96014 (84012407)	5.21036 (84040814)	5.34329 (84022707)	5.44705 (84111810)
3107800.0	5.04153 (84052817)	5.13433 (84030508)	5.39913 (84040813)	5.53957 (84040304)	5.82005 (84081709)
3107700.0	5.18491 (84112717)	5.32963 (84052817)	5.47650 (84112711)	5.90635 (84040813)	5.97006 (84031305)
3107600.0	5.40409 (84042124)	5.58968 (84112717)	5.59128 (84022622)	6.05902 (84022621)	6.42187 (84040813)
3107500.0	5.52195 (84010913)	5.74669 (84042124)	6.06755 (84112716)	6.27250 (84022622)	6.71998 (84022621)
3107400.0	5.70800 (84021214)	6.00814 (84020213)	6.25983 (84031304)	6.68384 (84071317)	6.98949 (84022622)
3107300.0	5.84225 (84080316)	6.18410 (84112715)	6.56781 (84021012)	6.84071 (84022623)	7.27448 (84022702)
3107200.0	5.96628 (84123116)	6.36436 (84052812)	6.83720 (84080316)	7.12139 (84112715)	7.45843 (84021012)
3107100.0	6.17602 (84012313)	6.49726 (84021011)	7.07929 (84072416)	7.18062 (84012312)	7.89652 (84080316)
3107000.0	5.94141 (84122816)	6.64729 (84070320)	6.67920 (84070320)	7.62230 (84012313)	8.06581 (84072416)
3106900.0	6.41199 (84122618)	6.70559 (84092311)	7.37564 (84092311)	7.89525 (84031210)	7.38827 (84031210)
3106800.0	6.48018 (84031214)	6.95529 (84031214)	7.29878 (84031209)	7.83903 (84072219)	8.06100 (84012315)
3106700.0	6.58026 (84122615)	7.04895 (84092211)	7.59174 (84092214)	8.15607 (84092214)	8.60388 (84092214)
3106600.0	6.45445 (84122612)	6.97871 (84031211)	7.51898 (84031211)	8.00217 (84031211)	8.29054 (84031211)
3106500.0	6.53044 (84110112)	6.95608 (84092110)	7.37433 (84092110)	7.72821 (84031512)	8.15875 (84090716)
3106400.0	6.41018 (84090716)	6.84315 (84092413)	7.30203 (84102510)	7.82120 (84012215)	8.65530 (84092616)
3106300.0	6.37793 (84092315)	6.76774 (84092511)	7.18525 (84092309)	7.62093 (84092510)	8.55262 (84070218)
3106200.0	6.07876 (84091903)	6.64894 (84092615)	7.06001 (84092215)	7.28132 (84080519)	7.96594 (84092417)
3106100.0	6.10300 (84092215)	6.43855 (84080519)	6.84697 (84092611)	7.28548 (84092614)	7.59720 (84012213)
3106000.0	5.92780 (84091711)	6.27069 (84092116)	6.57183 (84092418)	7.00309 (84102614)	7.45585 (84090717)
3105900.0	5.65050 (84092418)	6.05563 (84092314)	6.21904 (84102614)	6.62119 (84090717)	6.94245 (84103111)
3105800.0	5.54881 (84102417)	5.78455 (84102518)	6.03733 (84102617)	6.40535 (84103111)	6.67965 (84092613)
3105700.0	5.35440 (84092617)	5.48908 (84102617)	5.85161 (84103111)	6.14903 (84090818)	6.27210 (84090817)
3105600.0	5.10566 (84102516)	5.42613 (84102612)	5.65002 (84090818)	5.78695 (84110810)	6.07526 (84112414)
3105500.0	5.04788 (84102612)	5.23362 (84101115)	5.33098 (84110719)	5.59361 (84112414)	5.69861 (84092713)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	5.59875 (84091817)	5.87475 (84030513)	5.43983 (84042208)	6.03670 (84072616)	6.22227 (84022715)
3107800.0	5.77463 (84040223)	5.85191 (84030513)	6.30498 (84022706)	6.32579 (84040916)	6.28026 (84011010)
3107700.0	6.35470 (84052815)	6.49020 (84040223)	6.75187 (84040911)	6.71636 (84040916)	7.12152 (84022711)
3107600.0	6.61359 (84042701)	6.41552 (84052815)	7.04951 (84022710)	7.55695 (84022709)	7.53501 (84022711)
3107500.0	7.02745 (84030511)	7.32791 (84022704)	7.12807 (84040223)	7.80297 (84022708)	8.49812 (84040916)
3107400.0	7.45325 (84022621)	7.74328 (84030512)	8.11216 (84040912)	8.63054 (84022710)	9.13493 (84022709)
3107300.0	7.63943 (84022622)	8.16058 (84022621)	8.77331 (84030512)	8.09649 (84040912)	8.22476 (84022708)
3107200.0	7.76115 (84022623)	8.18379 (84112716)	8.57758 (84022621)	9.22283 (84022704)	8.67618 (84022710)
3107100.0	8.31533 (84041422)	8.47716 (84022623)	8.70104 (84112716)	8.22345 (84022621)	9.59708 (84022704)
3107000.0	8.33459 (84012312)	9.42511 (84052218)	8.03897 (84080411)	8.37308 (84061611)	9.92669 (84040212)
3106900.0	7.27278 (84012313)	7.71760 (84012313)	7.97804 (84012312)	9.19373 (84052218)	7.93373 (84080411)
3106800.0	7.90289 (84010911)	8.60378 (84031210)	8.45263 (84031210)	8.08197 (84021112)	7.72044 (84021112)
3106700.0	8.78172 (84092214)	8.59003 (84092210)	9.09327 (84092213)	10.84191 (84022906)	12.09961 (84022906)
3106600.0	8.69825 (84092515)	8.63975 (84092515)	8.99464 (84092212)	9.57532 (84092212)	9.15231 (84051711)
3106500.0	8.82524 (84092413)	8.07441 (84092413)	8.74811 (84092015)	9.82460 (84092312)	8.48748 (84052518)
3106400.0	8.16500 (84092309)	9.97886 (84052518)	9.70947 (84052518)	9.75841 (84092612)	10.96561 (84090811)
3106300.0	8.04315 (84090718)	8.81643 (84092417)	8.24398 (84012213)	8.65551 (84092512)	9.99017 (84061415)
3106200.0	7.93765 (84092614)	8.22521 (84102614)	8.80581 (84092517)	9.32708 (84092516)	11.16887 (84092711)
3106100.0	7.92673 (84102518)	8.41137 (84092517)	9.12321 (84092516)	10.35817 (84092711)	8.76798 (84112206)
3106000.0	7.54409 (84012211)	8.34754 (84092516)	8.81903 (84112205)	9.11246 (84112208)	9.21381 (84092715)
3105900.0	7.44381 (84092613)	7.71403 (84112209)	8.44873 (84092712)	8.20565 (84092715)	8.02456 (84012204)
3105800.0	6.88250 (84112209)	7.18289 (84092713)	7.68806 (84092610)	7.62934 (84110711)	8.27969 (84112215)
3105700.0	6.70373 (84090809)	6.95851 (84090810)	7.11580 (84092715)	7.17286 (84092709)	7.39172 (84012110)
3105600.0	6.32269 (84090816)	6.49224 (84092610)	6.69933 (84110711)	6.66275 (84112215)	6.99661 (84110709)
3105500.0	6.01366 (84112415)	6.02198 (84110615)	6.28943 (84092709)	6.48089 (84082112)	7.24414 (84102607)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	6.41227 (84032014)	5.91575 (84040312)	6.53193 (84040313)	6.06320 (84070417)	6.45893 (84032808)
3107800.0	6.53156 (84030610)	5.91840 (84040312)	6.99528 (84032017)	6.58462 (84032013)	6.83500 (84032808)
3107700.0	7.25057 (84032012)	6.06873 (84030608)	7.49174 (84032017)	7.34440 (84032013)	7.44368 (84032813)
3107600.0	7.85304 (84032012)	6.96524 (84022712)	8.11227 (84022713)	8.17423 (84032013)	8.19067 (84032813)
3107500.0	7.96251 (84022715)	8.50613 (84022712)	8.85025 (84022713)	8.98551 (84032013)	8.60458 (84032810)
3107400.0	8.88801 (84022711)	9.57531 (84022712)	9.45482 (84022713)	9.61409 (84032013)	9.77350 (84040412)
3107300.0	9.42721 (84040916)	9.13450 (84022712)	9.67690 (84022713)	9.73817 (84032013)	11.20553 (84030612)
3107200.0	9.68977 (84022709)	8.45296 (84042612)	9.06526 (84022713)	9.21057 (84032815)	12.40973 (84040415)
3107100.0	9.01156 (84040812)	7.51369 (84042209)	7.54282 (84032512)	9.14478 (84050515)	10.31290 (84030616)
3107000.0	8.88736 (84080209)	7.92122 (84042209)	6.93640 (84050712)	7.73903 (84050515)	10.35018 (84032712)
3106900.0	10.41823 (84040212)	8.94762 (84072815)	7.07398 (84072615)	14.43931 (84030612)	13.83053 (84050311)
3106800.0	11.01777 (84080411)	16.32635 (84040212)	8.44886 (84042209)	18.70545 (84032712)	20.26533 (84050314)
3106700.0	14.27804 (84022906)	8.85594 (84021112)	12.01669 (84040212)	21.29594 (84042213)	20.28627 (84062511)
3106600.0	11.94474 (84092313)	14.71069 (84092312)	27.23253 (84070415)	22.85117 (84022813)	25.00744 (84072115)
3106500.0	13.62396 (84092612)	17.57909 (84061415)	10.36471 (84030812)	11.42594 (84032112)	14.80629 (84022803)
3106400.0	10.98787 (84061415)	15.29290 (84080713)	12.97593 (84053113)	9.69355 (84112316)	11.80555 (84022814)
3106300.0	9.94233 (84090813)	7.99183 (84080713)	11.64720 (84112314)	7.17504 (84020714)	11.61067 (84022916)
3106200.0	9.67616 (84080713)	8.88737 (84112321)	13.11509 (84112314)	9.93620 (84020607)	8.97659 (84012914)
3106100.0	9.12151 (84012111)	9.77351 (84112321)	11.98685 (84112312)	10.78906 (84020607)	8.51725 (84053016)
3106000.0	9.10333 (84012111)	9.01602 (84112311)	11.16328 (84112312)	10.03245 (84020607)	10.12125 (84112316)
3105900.0	8.32057 (84112321)	9.26147 (84112311)	9.90369 (84112312)	9.50140 (84112315)	9.76123 (84112316)
3105800.0	8.63189 (84112321)	8.55336 (84112309)	8.62287 (84112312)	8.86071 (84112315)	8.08445 (84112316)
3105700.0	7.77007 (84112322)	7.64144 (84110610)	7.47126 (84020609)	8.07726 (84112315)	9.53870 (84112813)
3105600.0	8.15505 (84053106)	7.11528 (84112308)	7.06857 (84112317)	7.58603 (84100107)	10.09387 (84112813)
3105500.0	7.93635 (84053106)	6.71338 (84112304)	6.74619 (84112317)	7.69559 (84100107)	9.98088 (84112813)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	6.40770 (84032714)	6.38173 (84050216)	6.22452 (84032809)	6.13823 (84050215)	5.92572 (84042310)
3107800.0	6.74783 (84032714)	6.77878 (84050401)	6.63974 (84032715)	6.44325 (84111914)	6.25389 (84050320)
3107700.0	7.08477 (84032513)	7.30427 (84040418)	7.11476 (84050310)	6.85670 (84050319)	6.50273 (84050517)
3107600.0	8.00251 (84032814)	7.92142 (84032811)	7.53462 (84041516)	7.07396 (84050317)	6.90848 (84040414)
3107500.0	9.02931 (84032818)	8.50965 (84040417)	8.24288 (84032820)	7.88319 (84050411)	6.71463 (84041517)
3107400.0	9.64223 (84040418)	9.25979 (84041516)	7.98976 (84050411)	8.10708 (84041517)	8.02097 (84050316)
3107300.0	10.56170 (84032811)	10.31918 (84032820)	9.83253 (84040414)	8.70611 (84050315)	8.64502 (84032821)
3107200.0	10.27383 (84041516)	9.79254 (84040414)	8.68647 (84050315)	9.92439 (84032821)	6.61164 (84082008)
3107100.0	10.73601 (84032820)	8.61514 (84050214)	10.98363 (84032821)	7.55211 (84063015)	6.86306 (84062813)
3107000.0	10.24285 (84050311)	10.84509 (84032821)	8.48374 (84063010)	8.02689 (84091114)	8.25580 (84032822)
3106900.0	11.96761 (84050314)	9.15528 (84062915)	9.75649 (84032822)	11.59505 (84032822)	8.04959 (84050816)
3106800.0	10.78782 (84071814)	10.91317 (84081914)	10.51629 (84032823)	12.16095 (84032823)	9.09300 (84032823)
3106700.0	15.74201 (84062214)	10.41605 (84062513)	12.14445 (84092805)	12.30919 (84092805)	11.28744 (84092805)
3106600.0	18.85266 (84032908)	16.95499 (84032908)	14.73925 (84032905)	13.25061 (84032905)	11.37617 (84032901)
3106500.0	20.01585 (84032912)	10.62300 (84022809)	13.77361 (84032902)	11.89574 (84032906)	10.21620 (84032906)
3106400.0	10.52493 (84022803)	15.71502 (84022810)	12.35428 (84032911)	10.41512 (84022809)	10.68126 (84032904)
3106300.0	14.13183 (84022814)	12.11215 (84022803)	12.44930 (84022811)	11.39863 (84032915)	10.04995 (84022802)
3106200.0	8.87942 (84030915)	11.09690 (84022808)	11.02821 (84022803)	10.40535 (84022806)	9.57478 (84032916)
3106100.0	11.75238 (84022916)	9.42605 (84022814)	10.28078 (84022808)	9.42669 (84022803)	8.84502 (84022805)
3106000.0	8.82620 (84020608)	10.65904 (84112812)	9.43423 (84022824)	8.69214 (84092720)	8.10752 (84012716)
3105900.0	8.54448 (84031318)	13.25252 (84112812)	8.46746 (84022902)	8.15038 (84022818)	8.19839 (84022816)
3105800.0	8.21538 (84092724)	9.30486 (84112812)	12.06186 (84112812)	7.89202 (84112814)	8.02103 (84022818)
3105700.0	7.89381 (84112815)	7.43804 (84020608)	13.23377 (84112812)	7.39608 (84112812)	7.15843 (84112814)
3105600.0	7.26964 (84112815)	7.10872 (84031318)	10.07430 (84112812)	11.38500 (84112812)	7.13241 (84112814)
3105500.0	6.60029 (84012813)	6.65721 (84092724)	6.28298 (84020611)	11.99432 (84112812)	7.64315 (84112812)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	5.77164 (84050317)	5.53874 (84032713)	5.22492 (84011017)	5.22400 (84050417)	5.07352 (84050413)
3107800.0	6.01255 (84032716)	5.61276 (84041517)	5.62859 (84042316)	5.45631 (84050413)	5.11606 (84050415)
3107700.0	6.34604 (84041517)	6.03095 (84042316)	5.84820 (84050409)	5.61159 (84050415)	5.41050 (84050817)
3107600.0	6.25965 (84042316)	6.41342 (84040419)	6.16906 (84050415)	5.76259 (84082008)	5.20757 (84082003)
3107500.0	7.20397 (84050316)	6.78680 (84050415)	6.29131 (84082008)	5.34496 (84050419)	5.80515 (84040420)
3107400.0	7.52768 (84032019)	6.76132 (84082008)	5.99674 (84050419)	6.17100 (84040420)	5.99343 (84050418)
3107300.0	7.03139 (84082008)	6.90172 (84040420)	6.45438 (84050418)	5.89007 (84050418)	5.91970 (84062917)
3107200.0	7.48705 (84040420)	6.95308 (84050418)	6.37515 (84063014)	6.49293 (84062917)	6.10791 (84092812)
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*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

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*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

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Florida Gas Transmission Company

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

March 22, 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 these is Compressor Station No. 30, located in Hillsborough County, near Plant City, Florida.

Attached for your consideration is one original and three copies of an application for a State air permit for the addition of one Solar Saturn gas turbine at Compressor Station No. 30. This turbine is being transferred from our Compressor Station No. 32 located near Mulberry, florida. A check for the permit fee in the amount of $2,000 is also attached.

Should you have any questions concerning this application, please call Dr. V. Duane Pierce at (713) 853-3569.

Sincerely,

C. D. Schulz
Vice President, Phase III Expansion
Florida Gas Transmission Company

CDS:DP
pierce\corres\0322.2
cc J. Heron
B. Thomas, SW Dist
G. Kissel, EPCHC

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 6490359611

3013M 6490359610

RECIPIENT'S COPY

1 Date 3/29/93

From (Your Name) Please Print: Ms. Dagmar Neck
Your Phone Number (Very Important): (904) 335-1689
Company: AIR CONSULTING & ENGINEERING
Department/Floor No.:
Street Address: 2106 NW 67TH PLACE STE 4
City: GAINESVILLE State: FL ZIP Required: 32606

2 To (Recipient's Name) Please Print: Mr. Clair Fancy
Recipient's Phone Number (Very Important): ( )
Company: Florida Dept. of Environmental Regulation
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): Twin Towers Office Bldg. 2600 Blair Stone Road
City: Tallahassee State: FL ZIP Required: 32399-2400

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on Invoice.): 195 93 09

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address:
City: State: ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card 5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight (Delivery by next business morning†)
- 11 [ ] OTHER PACKAGING
- 16 [X] FEDEX LETTER*
- 12 [ ] FEDEX PAK*
- 13 [ ] FEDEX BOX
- 14 [ ] FEDEX TUBE

Standard Overnight (Delivery by next business afternoon. No Saturday delivery†)
- 51 [ ] OTHER PACKAGING*
- 56 [X] FEDEX LETTER*
- 52 [/] FEDEX PAK*
- 53 [ ] FEDEX BOX
- 54 [ ] FEDEX TUBE

Economy Two-Day (Delivery by second business day †)
- 30 [X] ECONOMY*

* Economy Letter rate not available. Minimum charge: One pound economy rate.

Government Overnight (Restricted for authorized users only)
- 46 [ ] GOVT LETTER
- 41 [ ] GOVT PACKAGE

Freight Service (for packages over 150 lbs.)
- 70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)
- 80 [ ] TWO-DAY FREIGHT**

† Delivery commitment may be later in some areas.
*Declared Value Limit $500.
**Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)
- 1 [ ] HOLD FOR PICK-UP (Fill in Box H)
- 2 [X] DELIVER WEEKDAY
- 3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
- 4 [ ] DANGEROUS GOODS (Extra charge)
- 5 [ ]
- 6 [ ] DRY ICE Dangerous Goods Shipper's Declaration not required
  Dry Ice, 9, UN 1845, ____ X ____ kg, 904 (I)
- 7 [ ] OTHER SPECIAL SERVICE
- 8 [ ]
- 9 [ ] SATURDAY PICK-UP (Extra charge)
  [ ] DESCRIPTION
- 12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
Total 1	Total 2	Total

DIM SHIPMENT (Chargeable Weight) [ ] ____ lbs.
L x W x H

Received At
1 [ ] Regular Stop 3 [ ] Drop Box
2 [ ] On-Call Stop 4 [ ] B.S.C. 5 [ ] Station

7 Release Signature:

Emp. No. Date
- [ ] Cash Received
- [ ] Return Shipment
- [ ] Third Party [ ] Chg. To Del. [ ] Chg. To Hold

Street Address
City State Zip
Received By: X
Date/Time Received FedEx Employee Number

Federal Express Use
- Base Charges
- Declared Value Charge
- Other 1
- Other 2
- Total Charges

REVISION DATE 11/92
PART #137204 FXEM 12/92
FORMAT #155
155

Florida Gas Transmission Company

PHASE III EXPANSION PROJECT

Compressor Station No. 30
Plant City, Hillsborough County, Florida

Permit to Construct Application

March 1993

CONTENTS

CONTENTS
(Cont'd)

APPENDICES

LIST OF TABLES

LIST OF FIGURES

1.0 FACILITY DESCRIPTION

Florida Gas Transmission Company (FGTC), a Delaware Corporation and ENRON/SONAT of Houston, Texas, is proposing to expand its existing natural gas pipeline facility in Hillsborough County, Florida (Compressor Station No. 30). This proposed modification 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 facilities. 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 locations of Compressor Station No. 30 along the main pipeline are shown in Figure 1-1.

Compressor Station No. 30 is located about 4 miles northeast of the town of Plant City on State Route 582 in Hillsborough County, Florida. Figure 1-2 shows the site location of the existing compressor station.

The proposed expansion at this location consists of the installation of one (1) 1,202 (ISO) brake horsepower (bhp), natural-gas-fired, turbine engine. The proposed engine would be used solely for the purpose of transporting natural gas by pipeline for distribution to markets in Florida. The proposed engine is a Solar Saturn T-1200. (Note: This unit was originally a Solar Saturn T-1001 remanufactured in 1966 to have the performance of a T-1200.) Under current federal and state air quality regulations, the proposed installation of this engine will constitute a minor modification at an existing minor stationary source.

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12-15-92

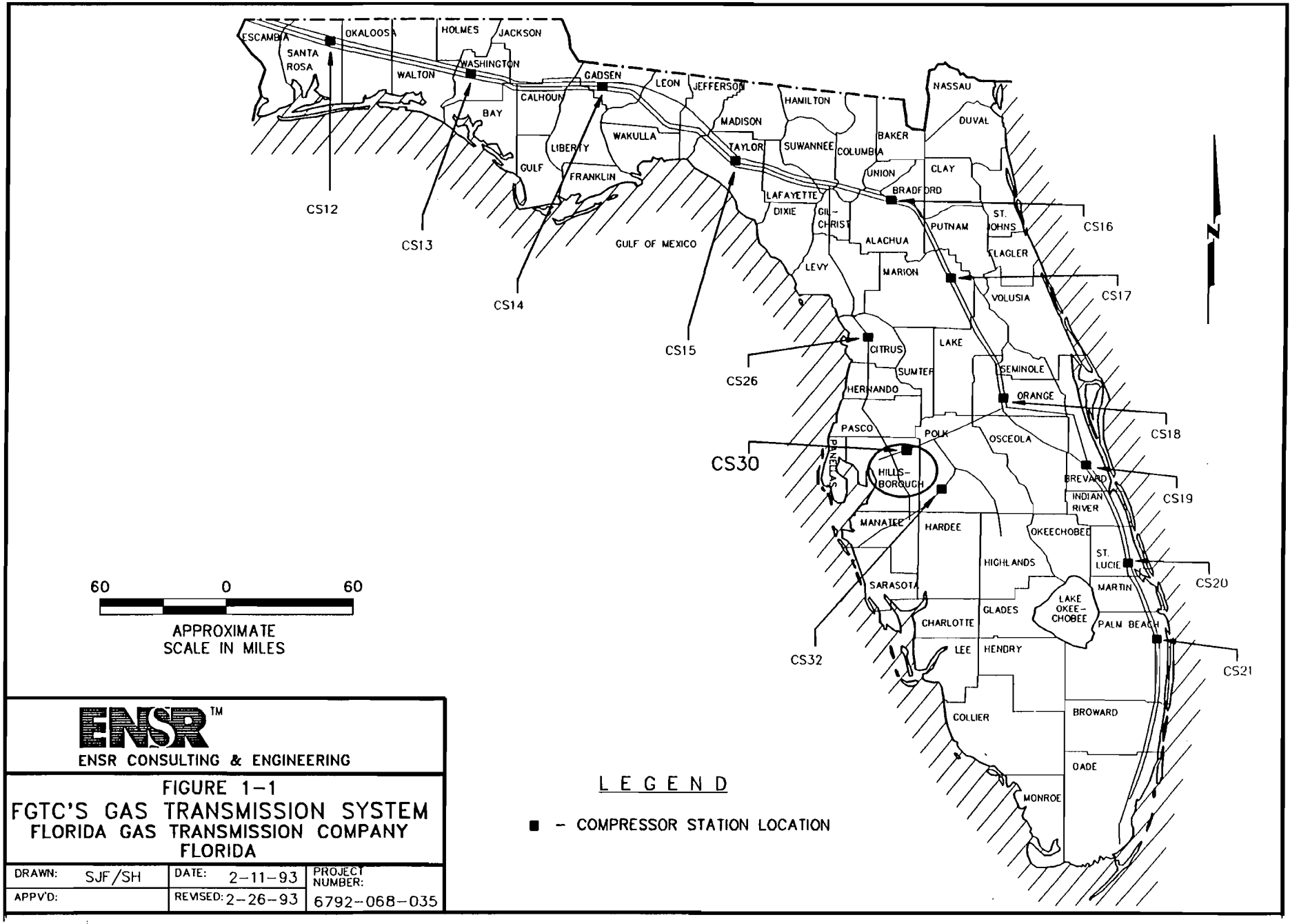

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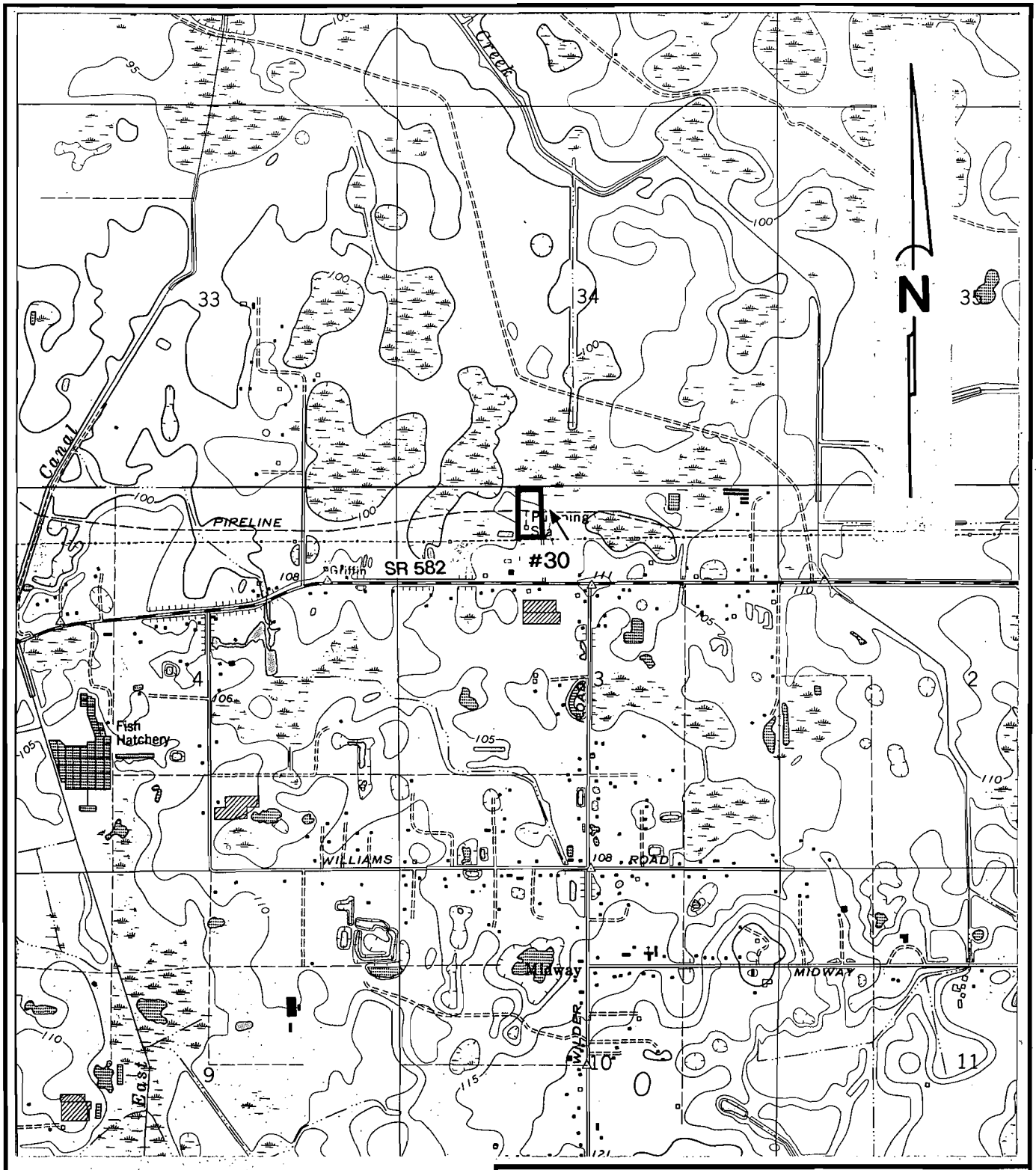
FIGURE 1-1
FGTC'S GAS TRANSMISSION SYSTEM
FLORIDA GAS TRANSMISSION COMPANY
FLORIDA

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 Plant City East, Florida, 1987.

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FIGURE 1-2

SITE LOCATION MAP

COMPRESSOR STATION #30

FLORIDA GAS TRANSMISSION COMPANY

PLANT CITY, FLORIDA

DRAWN BY: SJF/SH	DATE: 12-16-92	PROJECT NUMBER: 6792-068-035
CHK'D.BY:	REVISED: 1-12-93	

TOPO

This report addresses the permitting requirements of the Florida Department of Environmental Regulations (FDER). Based on the level of increased emissions associated with the addition of the proposed 1,202 (ISO) bhp engine, this project will require the issuance of a Permit to Construct.

It should be noted that this project will not result in totally new emissions. The engine to be installed at Compressor Station No. 30 is currently operating under a FDER permit at Compressor Station No. 32, in Polk County. As part of this project the compressor unit and associated ancillary equipment will be deactivated at Compressor Station No. 32, transported to Compressor Station No. 30 and reactivated. Thus, the emissions associated with the unit do not in fact, represent a net increase.

This application contains four additional sections. Descriptions of the existing operation at FGTC's Compressor Station No. 30 and the proposed 1,202 (ISO) bhp engine addition are presented in Section 2.0. The air quality review requirements and applicability of FDER regulations 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. References are included in Section 5.0.

FDER permit application forms are contained 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. 30, showing the location of the plant boundaries, the existing emission sources, and the location of the proposed additional engine, is presented in Appendix B. The following sections provide a description of the existing operations at this location, as well as the proposed project.

2.1 Existing Operation

FGTC's existing Compressor Station No. 30 consists of two (2) 1,202 bhp natural-gas-fired Solar Saturn T-1200 turbine engines. (Note: Both units are remanufactured T-1001 turbines, providing T-1200 performance.) Table 2-1 summarizes engine manufacturer, model, and dates of installation for each of the existing engines. The compressor station began operation in 1970 when engine 3001 was installed. A second identical unit (3002) was added to the station in 1985. With the exception of increasing stack height, made necessary by the construction of a new compressor building, these existing engines are not being modified as part of this expansion project.

2.2 Proposed Compressor Station Modifications

As part of the Phase III project, FGTC proposes to increase the horsepower capacity of Compressor Station No. 30. This will be achieved by relocating a compressor, currently operating in Polk County to Compressor Station No. 30.

The proposed engine (3003) to be installed at Compressor Station No. 30, 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 throughout south central Florida. Without the proposed engine, 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.

2.2.1 Compressor Engine Addition

The expansion plan calls for installation of one (1) Solar Saturn T-1200 engine-compressor unit and associated support equipment. The engine is ISO rated at 1,202 bhp at 22,500 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 the FGTC's gas pipeline. Engine specifications and stack parameters for the proposed engine are presented in Table 2-2.

TABLE 2-1

Summary of Existing Engine Information
Compressor Station No. 30

Engine No.	Date of Installation	Type	Manufacturer	Model #	Brake Horse Power (ISO) (bhp)
3001	1970	Turbine	Solar	T-1200*	1,202
3002	1985	Turbine	Solar	T-1200*	1,202

* Originally a T-1001, but was uprated to a T-1200 performance.

CE679259
(DALLAS/HPCL21)

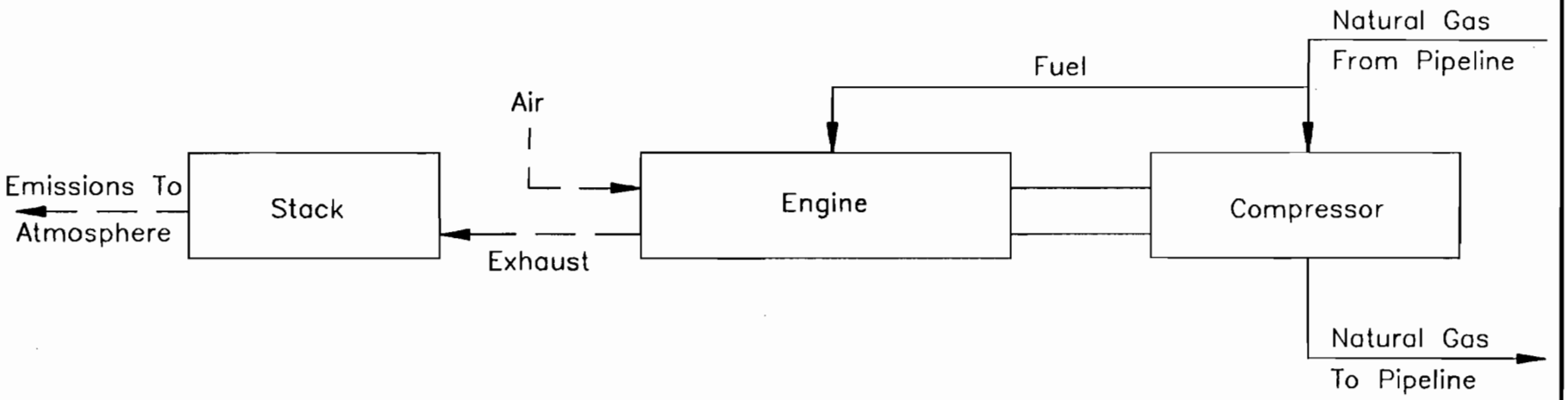

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FIGURE 2-1
PROCESS FLOW DIAGRAM
OF AN
ENGINE-COMPRESSOR UNIT

DRAWN: DC/SH	DATE: 11-6-92	PROJECT NUMBER:
APPV'D:	REVISED: 3-16-93	6792-068

TABLE 2-2

Engine Specifications and Stack Parameters for the Proposed Project

Parameter	Design Specification
Compressor Engine	3003
Type	Gas Turbine
Manufacturer	Solar
Model	Saturn T-1200
Unit Size	1,202 bhp ISO Rated
Specific Heat Input	10,923 Btu/bhp-hr
Maximum Fuel Consumption [a]	0.013 MMscfh
Speed	22,500 rpm
Stack Parameters	
Stack Height	20 feet
Stack Diameter	2.0 feet
Exhaust Gas Flow	27,854 acfm
Exhaust Temperature	837°F
Exhaust Gas Velocity	147.8 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.
MMscfh =	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).

* Original turbine was a T-1001 that was uprated in 1966 to a T-1200 performance level.

Hourly and annual emissions of regulated pollutants from the proposed engine under normal operating conditions, are presented in Table 2-3. Emissions of oxides of nitrogen (NO_x), carbon monoxide (CO), and non-methane hydrocarbons (NMHC) are based on engine manufacturer supplied data (See Appendix C).

Typically, turbine engine vendors do not provide information on particulate or SO_2 emissions. Therefore, particulate matter (PM) emissions are based upon USEPA publication AP-42 (USEPA, 1985) emission factors for natural gas combustion in boilers and emissions of sulfur dioxide (SO_2) are based on FGTC's natural gas specifications.

2.2.2 Support Equipment Additions

In addition to relocation of the compressor engine from Polk County, some support equipment will be installed at the site and will include:

- A new compressor building
- An office/control building
- Two - 55 gallon new lube oil storage drums
- Two - 250 gallon used oil storage tank

The new office/control building to be added at the site is currently in use at the Polk County station. The building will be dismantled and rebuilt at Compressor Station No. 30. As shown on the facility plot plan contained in Appendix B, the building will be placed to the south of the compressor engines. The approximate dimensions of the building will be 40 feet long by 12 feet wide by 16 feet tall. Since the building is over 100 feet from the proposed stack location, it will not influence compressor engine emissions. A new building will be constructed around the two existing and one new turbines. Approximate dimensions of the new compressor building will be 100 feet long by 40 feet wide by 15 feet tall. Stacks of all turbines will be raised to a height of 20 feet.

Proper lubrication is essential for optimal performance of compressor engines which must be capable of 24-hour per day operation for extended periods. For this reason lube oil will be stored on site. New lube oil will be delivered to and stored at the site in 55-gallon drums. As required, the oil will be transferred to the turbine to ensure that proper fluid level is maintained. No emissions will occur from the storage of this oil, as the drums will be sealed. Some fugitive losses will occur when the oil is transferred to the turbine, but the amount is insignificant.

TABLE 2-3

Emissions from FGTC's Proposed Compressor Engine

Pollutant	Emission Factor	Reference	Emission Rates	
			lb/hr	TPY
Nitrogen Oxides	1.49 grams/bhp-hr	Manufacturer Data	3.95	17.30
Carbon Monoxide	2.22 grams/bhp-hr	Manufacturer Data	5.88	25.75
Volatile Organic Compounds (non-methane)	0.095 grams/bhp-hr	Manufacturer Data	0.25	1.10
Particulate Matter	0.024 grams/bhp-hr	AP-42 (factor of 5 lb/MMscf)	0.064	0.28
Sulfur Dioxide	0.14 grams/bhp-hr	10 grains/100 scf	0.37	1.62

NOTE: Maximum natural gas consumption is 12,625 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.

Two tanks will be installed at the site to store used lube oil removed from the turbines during maintenance operations. These will be horizontal tanks, two feet in diameter and 10.75 feet long, with a 250-gallon capacity each. The tanks will be equipped with a relief valve and/or rupture disk to control emissions. Because these petroleum liquid storage tanks are used to store less than 1,000 barrels of material with a vapor pressure less than 0.0019 psia, they are not subject to control technology provisions specified in the Florida Administrative Code 17-2.650(1)(f)8(a).

Emissions from the used lube tanks are insignificant. Estimated annual emissions have been calculated using USEPA's AP-42 procedures and are less than 0.0001 TPY.

2.2.3 Fugitive Emissions

Potential emissions from Compressor Station No. 30 include fugitive emissions from the new the valves and flanges that will be in gas service. These fugitive emissions have been estimated using USEPA factors for components in gas service. Table 2-4 lists the quantities of existing and new components to be added as part of the Phase III project and an estimate of the fugitive emissions from these sources.

2.2.4 Emissions Summary

The total change in emissions from the proposed project are listed in Table 2-5. The calculation used to estimate these emissions are presented in Appendix D.

TABLE 2-4
FGTC's Compressor Station No. 30
Fugitive VOC Emission Calculation and Summary

COMPONENT TYPE	SERVICE	COMPONENT COUNT	EMISSION FACTORS	NM/NE * FRACTION	EMISSIONS LBS/HR	EMISSIONS LBS/DAY	EMISSIONS TONS/YR
CURRENT:							
Valve	Gas	55	1.06 Lbs/Day (a)	0.005	0.012	0.29	0.05
Flange	Gas	91	0.57 Lbs/Day (a)	0.005	0.011	0.26	0.05
Compressor Seal	Gas	2	39.7 Lbs/Day (a)	0.005	0.017	0.40	0.07
				Total	0.039	0.95	0.17
PROJECT ADDED							
Valve	Gas	51	1.06 Lbs/Day (a)	0.005	0.011	0.27	0.05
Flange	Gas	92	0.57 Lbs/Day (a)	0.005	0.011	0.26	0.05
Compressor Seal	Gas	1	39.7 Lbs/Day (a)	0.005	0.008	0.20	0.04
				Total	0.030	0.73	0.13
FUTURE: (b)							
Valve	Gas	106			0.023	0.56	0.10
Flange	Gas	183			0.022	0.52	0.10
Compressor Seal	Gas	3			0.025	0.60	0.11
				Total:	0.070	1.68	0.31

Notes: (a) – EPA-450/3-83-007, page 3-9
(b) – Future = current + project added
* – NM/NE = non-methane / non-ethane

TABLE 2-5

Annual (TPY) Emission Levels
FGTC's Compressor Station No. 30

SOURCE ID	DESCRIPTION	NO_x	CO	VOC (NM/NE, HC)	SO_2	PM
EXISTING FACILITY						
	COMPRESSOR ENGINES:					
3001	1202 bhp Turbine Engine	14.43	8.64	0.22	1.58	0.28
3002	1202 bhp Turbine Engine	14.43	8.64	0.22	1.58	0.28
	OTHER SOURCES: *	—	—	0.17	—	—
EXISTING TOTAL		28.86	17.28	0.61	3.16	0.56
PROJECT RELATED						
	COMPRESSOR ENGINE:					
	1202 bhp Turbine Engine	17.30	25.75	1.10	1.62	0.28
	TANKS:					
Tank 1	Used Lube Oil Tank	—	—	0.00**	—	—
Tank 2	Used Lube Oil Tank	—	—	0.00**	—	—
	FUGITIVE	—	—	0.13	—	—
PROJECT TOTAL		17.30	25.75	1.23	1.62	0.28
STATION TOTAL ***		46.16	43.03	1.84	4.78	0.84

* - estimated fugitive emissions from equipment leaks only.

** - actual emissions are insignificant at 0.00002 TPY for Tank 1 and 0.00002 TPY for Tank 2.

*** - 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. 30.

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. 30. Special attention will be placed on National Ambient Air Quality Standards (NAAQS) (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 in order to protect the public health (primary) and welfare (secondary). The federally promulgated standards and additional state standards are presented in 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 which adversely impact 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. The USEPA was then to issue

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
O3	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.

Sources: 40 CFR 50;36FR22384;Chapter 17-2.300, F.A.C.

this list of area classifications. The current classification of Hillsborough County is listed on Table 3-2, for each criteria pollutant. Hillsborough County is designated as attainment or unclassifiable for all criteria pollutants except ozone. Hillsborough County is designated a marginal non-attainment ozone area. These designations were obtained from 40 CFR 81, as updated in the November 6, 1991, Federal Register (56FR56694).

The designation of Unclassifiable/Attainment indicates that there is insufficient monitoring data to prove that the area has attained the federal standards; however, the limited data indicate that the standard has been achieved. Areas with this classification are treated as attainment areas for permitting purposes.

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 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. The USEPA was directed to prepare specific regulations on the methods to be employed in this analysis.

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 (40 CFR 52.21). 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. 30, however, 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. For Hillsborough County, emissions of NO_x, CO, PM_{10}, and SO_2 are subject to PSD rules. 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.

TABLE 3-2

Classification of Hillsborough County For Each Criteria Pollutant

Carbon Monoxide	Unclassifiable/Attainment
Oxides of Nitrogen	Cannot be Classified or Better than National Standards
Sulfur Dioxide	Cannot be Classified
Particulate Matter (PM_{10})	Not Designated
Total Suspended Particulate	Cannot be Classified
Ozone	Nonattainment, Marginal

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.

According to the "PSD Workshop Manual," (USEPA, 1980) for a modification to be classified as "major" and therefore, subject to PSD review:

(1) the modification must occur at an existing major stationary source, and

(2) the net emissions increase of any regulated pollutant emitted by the source, as a result of the modification, must be "significant", or

(3) the modification result in an emission increase, which, if considered alone, would constitute a major source.

"Significant" emission rates are defined as amounts equal to or greater than the emission rates given in Table 3-4.

By these definitions, and based on the emissions presented in Section 2.0 and the fact that the natural gas fired turbine in compressor service is not one of the 28 sources listed in Table 3-3, Compressor Station No. 30 is not an existing major stationary source. Further, the emissions from the proposed modification do not constitute a major modification. Therefore, this compressor station is not subject to PSD preconstruction permitting review.

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.

TABLE 3-4

PSD Significant Emission Rates

POLLUTANT	EMISSION RATE TONS/YEAR
Carbon Monoxide	100
Nitrogen Oxides	40
Sulfur Dioxide	40
Total Suspended Particulates	25
Ozone (VOC)	40
Lead	0.6
Asbestos	0.007
Beryllium	0.0004
Mercury	0.1
Vinyl Chloride	1.0
Fluorides	3
Sulfuric Acid Mist	7
Total Reduced Sulfur	10
Reduced Sulfur	10
Hydrogen Sulfide	10

VOC = Volatile Organic Compounds

A structure or terrain feature is considered nearby if a stack is within a distance of up to 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 km. 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 was not considered in determining the GEP stack height.

The proposed stack at Compressor Station No. 30 will be 20 feet (6.1 meters) in height. 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 requirements.

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 a 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 will also 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.), all Volatile Organic Compound sources which are located within an area of influence are exempt from the provisions of New Source Review (NSR) for non-attainment areas.

For the purposes of NSR, a major stationary source in a marginal ozone non-attainment area is one which emits or has the potential to emit ≥100 TPY of either NO_x or VOCs. Compressor Station No. 30, located in an area designated as marginally non-attainment for ozone, is an existing minor source for both NO_x and VOCs by this definition. Installation of the new turbine at Compressor Station No. 30 will not result in an increase in NO_x or VOCs in an amount

sufficient to make the station a major source; therefore, NSR is not triggered at this compressor station.

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 a later section.

Currently, there are 66 separate performance standards published in 40 CFR 60. The turbine to be relocated at Compressor Station No. 30 is subject to Subpart GG Stationary Gas Turbines 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:

$$STD = 0.0150 \frac{14.4}{Y} + F$$

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.

$$Y = Btu/bhp\text{-}hr \times 1.055\ Kj/Btu \times hp\text{-}hr/745.7\ watt\text{-}hour$$
$$= 10{,}923\ Btu/bhp\text{-}hr \times 1.055\ Kj/Btu \times hp\text{-}hr/745.7\ watt\text{-}hour$$
$$= 15.45$$

$$STD = 0.0150 \frac{14.4}{14.4} + 0$$
$$= 0.0150$$
$$= 150 ppm_v$$

Table 3-5 summarizes the NSPS applicability for the proposed gas engines.

The turbine at this facility will meet the NSPS for NO_x of 150 ppm_v (i.e., manufacturer guarantee of 62.58 ±20%), and for SO_2 of 150 ppm_v (estimated for this turbine to be 3 ppm_v).

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

TABLE 3-5

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. 3003 Gas Turbine	Gas	NO_2	>10 MM Btu/hr	13.1 MMBtu/hr	150 ppm_v	75 ppm_v
GG	60.333(a)	Engine No. 3003 Gas Turbine	Gas	SO_2	>10 MMBtu/hr	13.1 MMBtu/hr	150 ppm_v	3 ppm_v

* Design maximum based on vendor data.

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 adopted in 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 regulated by this Section. None of the promulgated standards apply to Compressor Station No. 30.

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. 30 have been incorporated, for the most part in whole, into the Florida state regulations. Specific air quality regulations of the state of Florida 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.

4.0 AIR QUALITY IMPACT ANALYSIS

The Florida Department of Environmental Regulation (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 project's impacts to the State and National AAQS, discussed in Section 3.0 of this report. The following 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 Guidelines 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 for Compressor Station No. 30, Hillsborough 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, using current USEPA and FDER policies.

The procedure listed below was followed:

- Model predictions for annual and short-term average concentrations based on the net emissions increases from the project 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 annual National AAQS for NO_x, the ISCLT2 was run using five years of meteorological data (1982-1986) processed into stability array (STAR) format. The maximum NO_x off-site impact from all 5 years was then compared to the PSD/AAQS significance level. All NO_x off-site impacts were less than 1 $\mu g/m^3$ significant level. Therefore, no additional modeling was required for NO_x.

- For comparison to short-term AAQS for CO, the ISCST2 was run with five year (1982-1986) meteorological data from the FDER. The maximum predicted off-site

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. I Draft. EPA-450/4-92-2a

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 kilometer radius circle around 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 for use 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 25 miles west of the site, is the nearest 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 Tampa meteorological data were considered representative of weather conditions occurring at the project site.

Meteorological data used in the analysis were obtained from the FDER. The data consisted of a 5-year record of surface and upper air weather observations (1982-1986). Surface and upper air data was collected at the NWS station located at Tampa, Florida. The data base consists of hourly surface data (i.e., windspeed, wind direction), and twice daily mixing heights. The surface and upper air data were preprocessed by the FDER, using the USEPA program RAMMET, which combines the surface and upper air data into a single file, which can then be input directly into the ISCST2 model. The five years of surface data from Tampa were then processed using the USEPA Stability Array (STAR) program, to generate the STAR data files for use in the ISCLT2 model.

4.1.6 Source Data

The source parameters for Compressor Station No. 30 are given in Table 4-2. The emission point listed as source 3003 (ISC Model Source #3) corresponds to the new compressor engine. The location of the proposed stacks within the facility are presented on the plot plan in Appendix B. Table 4-3 lists the emission rates modeled for NO_x and CO. The maximum pounds per hour (lb/hr) emission rates shown in the table were used as input to the ISCST model to determine concentrations for short-term averaging periods. Vendor supplied emission rates, in grams/bhp-hr, converted to tons/year values, were used to determine annual average concentrations.

4.1.7 Receptor Grid Modeled

For ISCST2 and ISCLT2, a 100-meter spaced, 25 x 25 receptor grid array was used to determine the maximum off-site concentrations. The spacing and number of receptors was based on guidance from FDER and the Guideline on Air Quality Models (USEPA, 1987d). The array was centered on the facility and extended 1.2 km, in all directions.

4.1.8 Building Wake Effects and GEP Considerations

Based on the dimensions of the structures located on the facility property, all stacks will be less than GEP height. Also, based on the location of emission points in relation to buildings and other solid structures, the stack emissions will be affected by wakes from some 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 ISC Dispersion Model User's Guide (USEPA, 1992). In the ISC model, the building heights and widths are input into 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 area equal to the square of the width input to the model. If a specific width is to be modeled, then the value input to the model must be calculated according to the following formula:

$$M_w = \sqrt{\pi \times \left(\frac{H_w}{2}\right)^2}$$

$$= 0.886 H_w$$

TABLE 4-2

FGTC Phase III
Station No. 30
Summary of Source Parameters Used in the Modeling Analysis

Source Number	Stack Location UTM		Stack Dimensions		Operating Parameters	
	E (m)	N (m)	Height (m)	Diameter (m)	Temperature (K)	Velocity (m/s)
3003	391945	3106656	6.10	0.61	. 720.37	45.04

TABLE 4-3

FGTC Phase III Expansion
Station No.30
Modeled Emission Rates

SOURCE NO.	NO_x TONS/YR	CO MAX LB/HR
3003	17.30	5.88
SOURCE NO.	**NO_x TONS/YR (GM/SEC)**	**CO MAX LB/HR (GM/SEC)**
3003	0.44	0.74

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.

If the Schulman-Scire wake effects method is used, the user inputs the building height and projected width associated with each wind sector. These building heights and projected widths are the same used for GEP stack height calculations. The actual inputs to the ISC model were generated using the Bowman Environmental Engineering Automated Downwash Program. The coordinates of all building corners, tier corners, tank centers 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 are 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 increases in emissions of the following pollutants emitted from the proposed new source (3003) at Compressor Station No. 30:

- NO_x, and
- CO.

A summary of the maximum predicted off-site concentrations for NO_x and CO, each averaging period, a comparison to each National AAQS, and significance level is shown in Table 4-5. Table 4-6 presents the maximum off-site concentrations for each year (1982 to 1986) modeled for NO_x and CO. The maximum predicted off-site impact from each pollutant due to the proposed modification were generally near the facility property boundary.

Area concentration maps for NO_x and CO, showing the facility boundary and maximum impacts, at each modeled receptor, are included for the worst-case year in Appendix F.

TABLE 4-4

FGTC Phase III
Station No. 30
Building Dimensions*

Building	Actual Building Dimensions		
	Height (ft)	Length (ft)	Width (ft)
Office/Control Building	16	40	12
Utility Building	16	40	20
Compressor Building	15	100	40

* All dimensions are from Plot Plan No. STA-30-SK, Issued 2/1/93.

TABLE 4-6

FGTC PHASE III
Station No. 30
Maximum Modeled Off-Site Impact by Year

Pollutant/ Averaging Period	1982	1983	1984	1985	1986
CO					
1-hour	39	49	25	34	23
8-hour	6	12	12	11	6
NO_x					
Annual	0.16	0.12	0.15	0.14	0.14

NOTE: All values are in $\mu g/m^3$ unless otherwise indicated.

As shown, all predicted off-site concentrations were well below both state and federal AAQSs. Significance levels were not exceeded for NO_x, or CO. The results of this air dispersion modeling show that the proposed modification to the Plant City 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 all modeling output are also included.

5.0 REFERENCES

Auer, A.H. 1978. Correlation of Land Use and Cover With Meteorological Anomalies. J. Appl. Meteor., Vol 17.

Bowman Environmental Engineering Automated Downwash Program (GEP). 1991. Bowman Environmental Engineering, Dallas, Texas.

Florida Administrative Code, Chapter 17-2 Air Pollution.

U.S. Environmental Protection Agency (USEPA). 1980. PSD Workshop Manual. Research Triangle Park, NC.

U.S. Environmental Protection Agency (USEPA). 1985. Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources AP-42. Research Triangle Park, NC.

U.S. Environmental Protection Agency (USEPA). 1987. Guideline on Air Quality Models, Supplement A (Revised). USEPA-450/2-78-027.

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; 36 FR22384; 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.

U.S. Environmental Protection Agency (USEPA). (Amended 1992). USEPA Regulations on Approval and Promulgation of Implementation Plans. 40 CFR 52; 37FR10846. Research Triangle Park, NC.

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

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCE

$2000 pd. 3/26/93 Receipt #182842

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

AC29-228821

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Natural Gas Compressor Engine [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [X] Modification

COMPANY NAME: Florida Gas Transmissio Company COUNTY: Hillsborough

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 30 Turbine No. 3003

SOURCE LOCATION: Street 2 Mi. East of State Highway 39 on Griffin Road City Plant City

UTM: East 391.895 meters North 3106.610 meters

Latitude 28 ° 04 ' 55 "N Longitude 82 ° 06 ' 01 "W

APPLICANT NAME AND TITLE: William Osborne, Environmental Director (713) 853-3294

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 Co.

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. Furth 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, Flor 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-transfera and I will promptly notify the department upon sale or legal transfer of the permit establishment.

*Attach letter of authorization

Signed:

Carl D. Schulz, Vice President, Phase III
Name and Title (Please Type)

Date: Telephone No. (713) 853-3893

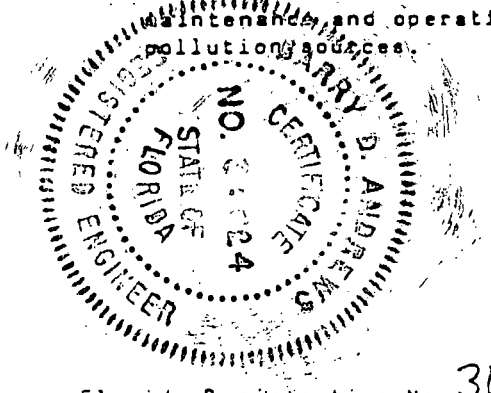
B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project h been ~~designed~~/examined by me and found to be in conformity with modern enginee principles applicable to the treatment and disposal of pollutants characterized in permit application. There is reasonable assurance, in my professional judgment,

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

97854

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.



Signed Barry D. Andrews

Barry D. Andrews
Name (Please Type)

ENSR Consulting and Engineering
Company Name (Please Type)

102 South Court Street, Florence, AL 35630
Mailing Address (Please Type)

Florida Registration No. 36024 Date: 3/19/93 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 - Facility Description
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

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;
if power plant, hrs/yr _____; if seasonal, describe: Not Applicable

F. If this is a new source or major modification, answer the following questions. (Yes or No) Not Applicable (See Application Report, Section 2.0)

1. Is this source in a non-attainment area for a particular pollutant? Yes

   a. If yes, has "offset" been applied? Not Required

   b. If yes, has "Lowest Achievable Emission Rate" been applied? Not Required

   c. If yes, list non-attainment pollutants. Ozone - marginal

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.

See Application Report

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 3003

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	3.95	17.3	N/A	N/A	3.95	17.3	
CO	5.88	25.8	N/A	N/A	5.88	25.8	
VOC	0.25	1.1	N/A	N/A	0.25	1.1	
SO_2	0.37	1.6	N/A	N/A	0.37	1.6	
PM	0.064	0.3	N/A	N/A	0.064	0.3	

[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)

Emision Point: Used Lube Oil Tank 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/hr	T/yr	
VOC	0.0	0.0	N/A	N/A	0.0	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: Used Lub Oil Tank 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/hr	T/yr	
VOC	0.0	0.0	N/A	N/A	0.0	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).

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)

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
Natural Gas	0.0125	0.0125	13.13

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis:

Percent Sulfur: 0.031** Percent Ash: Not Applicable

Density: 0.0455 lb/ft^3 lbs/gal Typical Percent Nitrogen: _____

Heat Capacity: 22,857 BTU/lb _____ BTU/gal

Other Fuel Contaminants (which may cause air pollution): Not Applicable

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):

Stack Height: 20 ft. Stack Diameter: 2 ft.

Gas Flow Rate: 27,854 ACFM 11,339 DSCFM Gas Exit Temperature: 837 °F.

Water Vapor Content: 8 % Velocity: 147.8 FPS

SECTION IV: INCINERATOR INFORMATION

Not Applicable

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 Applicatin 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, Appdenix B.

c. The appropriate application fee in accordance with Rule 17-4.05. The check should be made payable to the Department of Environmental Regulation.

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?

[X] Yes [ ] No

Contaminant	Rate or Concentration
NO_x	62.58 ± 20% ppmv
SO_2	3 ppmv

B. Has EPA declared the best available control technology for this class of sources (If yes, attach copy)

[ ] Yes [ ] No

Contaminant	Rate or Concentration

C. What emission levels do you propose as best available control technology?

Contaminant	Rate or Concentration

D. Describe the existing control and treatment technology (if any).

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).

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:

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] Not Applicable

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: Not Applicable

[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

A. Company Monitored Data Not Applicable

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

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.

APPENDIX B

PLOT PLAN

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	4.73225 (86112811)	4.93662 (86031906)	5.20580 (86031213)	5.29660 (86031811)	5.20305 (86031909)
3107800.0	4.99183 (86102508)	5.05061 (86112811)	5.37551 (86112608)	5.62520 (86031213)	5.78008 (86112522)
3107700.0	5.23410 (86031817)	5.41102 (86081224)	5.43007 (86031301)	5.87713 (86112608)	5.94923 (86031213)
3107600.0	5.36570 (86031303)	5.61005 (86031812)	5.84797 (86081224)	5.90689 (86031301)	6.38548 (86112608)
3107500.0	5.59303 (86060218)	5.75572 (86112606)	6.13665 (86103119)	6.40082 (86031306)	6.41032 (86031301)
3107400.0	5.59668 (86112510)	5.82622 (86030913)	6.34496 (86061020)	6.75751 (86031312)	6.95789 (86112511)
3107300.0	5.89219 (86031818)	6.06983 (86112510)	6.59407 (86030913)	6.79976 (86061020)	7.30810 (86031312)
3107200.0	5.86794 (86091716)	6.35837 (86030911)	6.76289 (86070518)	6.79377 (86112510)	7.49704 (86030913)
3107100.0	5.82153 (86120822)	6.37898 (86122311)	6.62863 (86122311)	7.21314 (86030911)	7.86189 (86070518)
3107000.0	5.87806 (86032515)	5.52671 (86120813)	6.11364 (86031810)	6.69940 (86040321)	7.47206 (86122311)
3106900.0	5.87275 (86040517)	6.22336 (86040517)	6.95623 (86032515)	7.38007 (86032515)	6.54341 (86032515)
3106800.0	6.16000 (86123118)	6.65573 (86032611)	7.16706 (86032611)	7.34292 (86032611)	6.86856 (86032611)
3106700.0	6.28598 (86051010)	6.72385 (86051010)	7.15352 (86051010)	7.47594 (86051010)	7.77411 (86040422)
3106600.0	6.52525 (86080918)	6.94563 (86080918)	7.37861 (86010912)	7.73844 (86010912)	7.84918 (86010912)
3106500.0	6.29518 (86032517)	6.80082 (86032512)	7.26183 (86010911)	7.69369 (86010911)	8.02246 (86111412)
3106400.0	6.40935 (86050418)	6.73344 (86050418)	6.71919 (86122217)	7.56707 (86010824)	7.96310 (86010824)
3106300.0	6.27449 (86122216)	6.52610 (86111411)	6.84447 (86111411)	6.44022 (86050417)	7.19543 (86032514)
3106200.0	5.89905 (86050417)	5.87838 (86121409)	6.83005 (86032514)	7.34329 (86010814)	7.91631 (86122213)
3106100.0	6.04443 (86032514)	6.36674 (86010814)	6.84048 (86051015)	7.14817 (86111321)	7.50804 (86111409)
3106000.0	5.87709 (86051015)	6.08464 (86010818)	6.58536 (86120615)	6.75234 (86111401)	6.98132 (86120614)
3105900.0	5.74893 (86092014)	5.93049 (86111409)	6.24817 (86120620)	6.43928 (86122609)	7.74600 (86122609)
3105800.0	5.46291 (86122212)	5.80873 (86120614)	6.40939 (86122609)	7.35986 (86122609)	6.56774 (86111323)
3105700.0	5.30115 (86120614)	6.21258 (86122609)	6.88248 (86122609)	6.06931 (86122609)	6.30805 (86120611)
3105600.0	5.93722 (86122609)	6.39383 (86122609)	5.66895 (86122609)	5.84955 (86102210)	5.72904 (86112108)
3105500.0	5.93314 (86122609)	5.28090 (86122609)	5.38098 (86102210)	5.42939 (86112108)	5.66017 (86101716)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	4.93769 (86102511)	5.86326 (86031910)	5.95004 (86052004)	5.89025 (86031912)	6.24182 (86031404)
3107800.0	5.78197 (86031909)	5.88706 (86102511)	6.35694 (86031403)	6.59295 (86031912)	6.42493 (86090119)
3107700.0	6.32542 (86031310)	5.72929 (86031909)	6.72331 (86031910)	6.85401 (86052004)	7.22990 (86090119)
3107600.0	6.72945 (86031911)	6.38124 (86031310)	6.21287 (86031910)	7.27897 (86031403)	7.23790 (86031912)
3107500.0	6.84328 (86112608)	7.35212 (86031811)	6.30719 (86031909)	7.50451 (86031910)	7.51765 (86092320)
3107400.0	6.90870 (86031301)	7.28041 (86031213)	7.92085 (86031310)	5.97054 (86110713)	7.75528 (86031403)
3107300.0	7.47966 (86112511)	7.21949 (86031301)	7.60477 (86031213)	7.67424 (86031310)	7.37805 (86112512)
3107200.0	7.37307 (86031515)	7.60005 (86031812)	7.63555 (86031311)	7.58552 (86031911)	6.76483 (86112412)
3107100.0	7.71528 (86030913)	7.45108 (86061020)	7.70690 (86031312)	8.34090 (86031815)	8.19684 (86042009)
3107000.0	7.46754 (86030911)	8.33463 (86070518)	7.67531 (86030914)	8.55471 (86092216)	9.32685 (86031813)
3106900.0	6.64036 (86092013)	7.68299 (86051509)	8.41386 (86050509)	8.53380 (86081115)	7.54820 (86092216)
3106800.0	6.97742 (86111014)	8.01380 (86111014)	8.37903 (86051011)	8.06489 (86051509)	7.97262 (86050509)
3106700.0	7.89664 (86040422)	7.98291 (86110810)	8.44273 (86040514)	7.96339 (86040514)	8.54589 (86052714)
3106600.0	7.55205 (86010912)	7.93665 (86121413)	8.28869 (86121413)	9.80304 (86060316)	11.18790 (86060316)
3106500.0	7.94930 (86111412)	7.66502 (86032411)	8.55863 (86032411)	9.04226 (86032911)	9.36844 (86032612)
3106400.0	7.16887 (86111411)	7.50114 (86051016)	8.47840 (86032612)	9.27249 (86051013)	8.21574 (86120613)
3106300.0	7.95747 (86010814)	8.39567 (86122213)	7.91039 (86111321)	8.72499 (86120613)	9.62721 (86032912)
3106200.0	8.48044 (86111321)	7.25760 (86111401)	9.30107 (86061615)	8.21439 (86032912)	8.72947 (86111320)
3106100.0	7.49523 (86120614)	8.61938 (86010813)	7.92215 (86111323)	8.42127 (86111320)	7.90721 (86032814)
3106000.0	7.90020 (86122609)	7.75407 (86111323)	7.22427 (86120601)	7.29432 (86101709)	7.38539 (86010816)
3105900.0	7.20439 (86111323)	7.11843 (86120601)	7.85237 (86111320)	7.71216 (86032211)	7.68729 (86032209)
3105800.0	6.77233 (86120611)	7.37842 (86111320)	7.04083 (86032310)	7.04014 (86010816)	7.20113 (86121305)
3105700.0	6.39654 (86111320)	6.76355 (86101709)	6.93470 (86010816)	7.16403 (86032209)	7.59701 (86121305)
3105600.0	5.95444 (86101709)	6.39777 (86032211)	6.27464 (86120513)	6.01383 (86120520)	6.93238 (86101609)
3105500.0	5.87395 (86032310)	6.09646 (86010816)	6.21995 (86032209)	6.41320 (86120520)	6.46075 (86032210)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	6.27448 (86121109)	6.64054 (86121209)	6.53922 (86121113)	6.43299 (86031318)	6.32656 (86050518)
3107800.0	6.66601 (86031314)	6.17473 (86121108)	6.97376 (86121113)	6.74220 (86031318)	6.83578 (86113015)
3107700.0	7.22114 (86031314)	5.99634 (86121108)	7.39764 (86121113)	6.99532 (86031318)	7.17535 (86113015)
3107600.0	7.35158 (86031404)	5.90359 (86121109)	7.72669 (86121113)	7.08213 (86031318)	7.47143 (86031914)
3107500.0	7.53010 (86090119)	6.49842 (86121109)	7.82623 (86121113)	6.86401 (86031616)	7.63330 (86031914)
3107400.0	8.63704 (86090119)	6.62231 (86031314)	7.55442 (86121113)	7.30553 (86031616)	7.14352 (86121114)
3107300.0	6.99926 (86031912)	7.76149 (86081312)	7.24904 (86031315)	8.67585 (86031412)	7.43879 (86072911)
3107200.0	7.16453 (86020510)	8.37572 (86081312)	8.40921 (86031315)	11.47890 (86031412)	8.94150 (86072911)
3107100.0	8.38421 (86112512)	6.97161 (86120913)	8.93807 (86031315)	14.19940 (86031412)	9.07336 (86072914)
3107000.0	7.65368 (86112412)	6.57322 (86083112)	7.77434 (86031315)	14.45463 (86031412)	9.07546 (86072914)
3106900.0	8.93440 (86031813)	6.18266 (86112512)	8.45499 (86031315)	11.85375 (86031412)	7.25948 (86072915)
3106800.0	7.07244 (86030912)	13.11999 (86031813)	6.07797 (86081312)	15.29307 (86072914)	13.28798 (86042112)
3106700.0	12.22601 (86052714)	9.15730 (86052714)	7.39858 (86031813)	21.28576 (86090514)	23.25612 (86072712)
3106600.0	11.10761 (86060316)	13.47630 (86032612)	7.19749 (86032912)	5.17800 (86030115)	14.19409 (86041714)
3106500.0	12.50385 (86051013)	13.01446 (86032912)	12.22797 (86032917)	10.33459 (86011313)	11.80534 (86030115)
3106400.0	9.03471 (86032912)	8.63643 (86101711)	11.15106 (86032917)	9.88976 (86032113)	9.38080 (86032112)
3106300.0	8.39968 (86032410)	6.51768 (86032413)	6.81144 (86032917)	9.89013 (86032113)	7.05153 (86041014)
3106200.0	8.84425 (86032313)	6.51612 (86032917)	7.75955 (86011113)	10.27874 (86032113)	8.74864 (86011313)
3106100.0	7.28948 (86060516)	8.17458 (86032917)	8.18335 (86011113)	9.01755 (86032113)	8.10255 (86071213)
3106000.0	8.88089 (86121305)	8.97372 (86011108)	7.76848 (86011114)	7.79807 (86032214)	8.12693 (86032111)
3105900.0	7.67228 (86121305)	9.22663 (86011108)	7.60636 (86032309)	6.98947 (86011104)	7.37001 (86011111)
3105800.0	7.71796 (86032210)	8.13190 (86011108)	7.51380 (86032309)	7.15576 (86032103)	7.52776 (86051920)
3105700.0	7.46029 (86011106)	7.12318 (86032107)	7.23069 (86011103)	7.21879 (86032103)	7.30001 (86051920)
3105600.0	6.88591 (86011106)	6.59218 (86032107)	6.93061 (86011103)	6.99034 (86032103)	7.12378 (86011107)
3105500.0	6.66985 (86011109)	6.41284 (86032106)	6.53238 (86011103)	6.63630 (86032103)	6.69784 (86011107)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	6.30689 (86121114)	6.32675 (86020612)	5.90913 (86031416)	5.66248 (86102515)	5.89186 (86031316)
3107800.0	6.31781 (86032010)	6.69628 (86031915)	6.67797 (86072917)	6.02985 (86032016)	5.63506 (86031918)
3107700.0	7.11507 (86032010)	7.24739 (86031915)	6.63467 (86072917)	6.91882 (86031317)	6.48781 (86031916)
3107600.0	7.27942 (86020612)	7.45038 (86072917)	6.46581 (86031317)	6.24890 (86031918)	6.73540 (86020613)
3107500.0	8.46408 (86031915)	8.26654 (86072917)	8.13324 (86031317)	7.86026 (86031916)	6.31956 (86032017)
3107400.0	9.15961 (86031915)	7.20387 (86031317)	7.96037 (86031916)	6.33571 (86020516)	7.86458 (86031414)
3107300.0	8.98482 (86072917)	8.74803 (86031317)	7.58959 (86031916)	8.23701 (86031414)	6.00077 (86022721)
3107200.0	8.21550 (86031913)	8.80618 (86031916)	7.78837 (86031414)	6.92620 (86020415)	8.81423 (86022712)
3107100.0	8.88559 (86072915)	7.70832 (86072811)	7.87955 (86022712)	8.85983 (86022712)	7.16322 (86082004)
3107000.0	7.48881 (86020513)	8.14135 (86022712)	8.73408 (86032014)	8.04707 (86050615)	7.29059 (86111715)
3106900.0	8.05894 (86042112)	8.82979 (86032014)	8.93597 (86081213)	8.17375 (86072116)	7.65357 (86062415)
3106800.0	9.32213 (86081213)	10.53968 (86072712)	10.24644 (86072712)	8.79790 (86042714)	7.88113 (86042114)
3106700.0	12.78422 (86072912)	10.36871 (86072912)	10.16012 (86072912)	9.21541 (86060615)	8.18424 (86120211)
3106600.0	13.68491 (86012711)	8.44577 (86012713)	11.88682 (86012713)	12.04353 (86012713)	10.71044 (86012713)
3106500.0	11.22720 (86042214)	9.90343 (86012714)	9.18472 (86040216)	9.60306 (86012711)	10.90184 (86012711)
3106400.0	8.95838 (86030115)	9.96731 (86042214)	11.15087 (86012714)	10.30665 (86012714)	8.69068 (86011914)
3106300.0	11.34858 (86120313)	11.10089 (86030115)	9.24413 (86012717)	9.54878 (86012715)	9.38229 (86012714)
3106200.0	9.85533 (86120313)	11.00308 (86120313)	10.58520 (86030114)	9.43093 (86012718)	9.32271 (86012617)
3106100.0	8.15294 (86030105)	12.79835 (86120313)	10.01430 (86012616)	9.50415 (86030114)	8.72803 (86030117)
3106000.0	9.42069 (86010510)	8.34728 (86120313)	12.03205 (86120313)	8.90428 (86012616)	8.26648 (86030116)
3105900.0	7.92135 (86010514)	8.34261 (86030105)	10.07820 (86120313)	10.09406 (86120313)	7.73732 (86122013)
3105800.0	6.85335 (86021512)	8.22603 (86010510)	7.23478 (86032118)	9.98062 (86120313)	8.19356 (86120313)
3105700.0	7.47041 (86032111)	7.51472 (86010514)	7.24708 (86030105)	7.65155 (86120313)	9.06082 (86120313)
3105600.0	7.14313 (86032111)	6.60038 (86010514)	6.84397 (86011314)	6.52074 (86032118)	7.96324 (86120313)
3105500.0	6.61888 (86011111)	6.18602 (86122014)	6.38962 (86010516)	6.37730 (86111316)	6.78614 (86120317)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	5.60125 (86031918)	5.51250 (86020516)	5.29623 (86032017)	4.69458 (86031217)	4.91287 (86031217)
3107800.0	5.97535 (86031916)	5.38000 (86032017)	4.89537 (86032017)	5.29449 (86031217)	5.06143 (86022721)
3107700.0	6.06218 (86020516)	5.50868 (86032017)	5.76805 (86031414)	5.38752 (86022721)	5.10732 (86022719)
3107600.0	6.04584 (86032017)	6.44213 (86031414)	5.70455 (86022721)	5.32141 (86022712)	4.59798 (86022712)
3107500.0	7.16539 (86031414)	5.98147 (86022721)	6.11696 (86022712)	4.87724 (86022708)	5.35439 (86022709)
3107400.0	6.16242 (86022721)	7.02581 (86022712)	5.31189 (86022708)	5.90162 (86022709)	6.01755 (86082004)
3107300.0	7.99430 (86022712)	5.47042 (86022709)	6.63136 (86082004)	6.51020 (86022710)	5.82650 (86022718)
3107200.0	6.23909 (86022717)	7.53285 (86022713)	6.74715 (86022710)	6.13175 (86073016)	6.32556 (86022715)
3107100.0	7.91309 (86022710)	6.53976 (86022715)	7.46685 (86022715)	6.10095 (86081317)	5.89161 (86081317)
3107000.0	8.41734 (86022715)	6.18950 (86081317)	6.73220 (86070215)	7.13411 (86070215)	6.57653 (86040116)
3106900.0	7.68037 (86070215)	8.02915 (86121214)	7.70021 (86121214)	7.06250 (86040910)	6.59577 (86011912)
3106800.0	8.02499 (86011912)	7.49055 (86011912)	6.82056 (86040911)	6.96791 (86040911)	6.74658 (86040911)
3106700.0	7.97610 (86120211)	7.39771 (86120211)	7.08518 (86070315)	6.88400 (86070315)	6.55095 (86070315)
3106600.0	9.06763 (86012713)	7.55333 (86012713)	7.37988 (86011916)	7.13543 (86011916)	6.76562 (86011916)
3106500.0	9.30702 (86012711)	8.72142 (86012712)	7.85054 (86012712)	7.33944 (86040905)	6.84250 (86040905)
3106400.0	8.58924 (86072816)	7.29806 (86041621)	7.66432 (86120212)	7.28914 (86120212)	6.62216 (86040906)
3106300.0	8.90080 (86012716)	8.16011 (86021803)	7.65164 (86011914)	7.13799 (86072816)	6.26742 (86041621)
3106200.0	7.77066 (86030613)	7.74242 (86072719)	7.29491 (86012615)	6.85332 (86021803)	6.44296 (86030615)
3106100.0	7.75479 (86012617)	7.44069 (86012013)	6.88404 (86072719)	6.60173 (86041619)	6.41070 (86021110)
3106000.0	7.65873 (86030117)	7.13027 (86012717)	6.68698 (86030118)	6.50803 (86030613)	6.05187 (86072719)
3105900.0	7.25757 (86030113)	6.85741 (86012618)	6.34877 (86012717)	6.01760 (86012612)	5.89629 (86012013)
3105800.0	6.94743 (86122013)	6.48993 (86030113)	6.23612 (86012614)	5.94686 (86042217)	5.61733 (86011317)
3105700.0	6.78146 (86120315)	6.30657 (86040917)	5.81676 (86030113)	5.91300 (86012614)	5.52803 (86013014)
3105600.0	7.92407 (86120313)	6.65940 (86120315)	5.69685 (86040917)	5.24206 (86012619)	5.57149 (86012614)
3105500.0	7.68978 (86120313)	6.83009 (86120313)	6.32926 (86120315)	5.23252 (86121223)	4.84330 (86012723)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	2.53358 (86031308)	2.22178 (86031308)	1.87481 (86102608)	1.87462 (86112608)	1.68151 (86112608)
3107800.0	2.85744 (86031308)	2.72597 (86031308)	2.30220 (86031308)	1.91421 (86081308)	1.94152 (86112608)
3107700.0	2.96196 (86031308)	3.11097 (86031308)	2.93289 (86031308)	2.35800 (86031308)	1.97918 (86081308)
3107600.0	2.46734 (86031308)	3.15721 (86031308)	3.38822 (86031308)	3.15057 (86031308)	2.37184 (86031308)
3107500.0	2.31093 (86031016)	2.49120 (86031016)	3.31784 (86031308)	3.68227 (86031308)	3.37008 (86031308)
3107400.0	1.92489 (86031016)	2.36713 (86031016)	2.65321 (86031016)	3.39451 (86031308)	3.97414 (86031308)
3107300.0	2.00475 (86120908)	2.03451 (86030916)	2.30789 (86031016)	2.75980 (86031016)	3.30270 (86031308)
3107200.0	2.75044 (86120908)	2.53898 (86120908)	2.31181 (86030916)	2.47888 (86030916)	2.73271 (86031016)
3107100.0	2.11471 (86112908)	2.41895 (86120908)	2.65857 (86120908)	2.48015 (86120908)	2.80764 (86030916)
3107000.0	1.94741 (86112908)	2.03865 (86112908)	2.04949 (86112908)	2.02598 (86052716)	2.38273 (86102316)
3106900.0	2.17182 (86112316)	2.28203 (86112316)	2.52799 (86111116)	2.79454 (86111116)	2.97634 (86111116)
3106800.0	2.55788 (86040424)	2.52025 (86040424)	2.43695 (86112316)	2.71686 (86112316)	2.96400 (86112316)
3106700.0	2.81990 (86040424)	2.93252 (86040424)	3.04766 (86040424)	3.12855 (86040424)	3.15378 (86040424)
3106600.0	3.37808 (86111016)	3.61583 (86111016)	3.85146 (86111016)	4.03980 (86111016)	4.12664 (86111016)
3106500.0	2.29144 (86111016)	2.22344 (86111416)	2.41710 (86111416)	2.67794 (86091516)	3.06623 (86091516)
3106400.0	2.46604 (86122224)	2.80902 (86122224)	3.03813 (86122224)	3.01527 (86122224)	3.18093 (86091716)
3106300.0	2.61884 (86122224)	2.44002 (86122224)	2.51390 (86091716)	2.62284 (86091716)	2.52076 (86091716)
3106200.0	1.99748 (86122224)	2.02204 (86122224)	2.19196 (86010908)	2.84115 (86101916)	3.40189 (86101916)
3106100.0	2.28864 (86010908)	2.81351 (86010908)	3.02659 (86111408)	3.46819 (86111408)	3.59197 (86111408)
3106000.0	2.87143 (86010908)	3.06880 (86111408)	3.27759 (86111408)	3.29646 (86120616)	3.67324 (86120624)
3105900.0	2.89747 (86111408)	3.00544 (86111408)	3.20330 (86120624)	3.65226 (86120624)	4.05968 (86010816)
3105800.0	2.71720 (86111408)	3.39497 (86120624)	3.48748 (86120624)	3.60192 (86010816)	2.89010 (86111324)
3105700.0	3.43598 (86120624)	3.24778 (86120624)	3.18859 (86010816)	2.63732 (86111324)	2.96268 (86120516)
3105600.0	2.97994 (86120624)	2.82738 (86010816)	2.40518 (86111324)	2.66959 (86120516)	3.27748 (86120516)
3105500.0	2.51596 (86010816)	2.28676 (86122716)	2.43117 (86122716)	3.01104 (86120516)	3.07632 (86120516)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	1.44643 (86020508)	1.48691 (86102516)	1.38032 (86052008)	2.26305 (86031408)	2.55936 (86031408)
3107800.0	1.57259 (86112516)	1.48007 (86112516)	1.63538 (86102516)	1.94852 (86031408)	2.78980 (86031408)
3107700.0	1.93110 (86112608)	1.75138 (86112516)	1.66319 (86102516)	1.61560 (86031408)	2.77078 (86031408)
3107600.0	2.01703 (86112608)	1.97402 (86112516)	1.90940 (86112516)	1.83556 (86102516)	2.44259 (86031408)
3107500.0	2.31835 (86031308)	2.07865 (86112608)	2.23142 (86112516)	1.97911 (86112516)	1.89930 (86031408)
3107400.0	3.57260 (86031308)	2.15501 (86031308)	2.37862 (86112516)	2.44514 (86112516)	1.88810 (86102516)
3107300.0	4.20778 (86031308)	3.64791 (86031308)	2.20951 (86112516)	2.69280 (86112516)	2.47628 (86112516)
3107200.0	3.48980 (86112416)	4.14787 (86031308)	3.46107 (86031308)	2.47172 (86112516)	2.87567 (86112516)
3107100.0	2.97674 (86030916)	3.71078 (86112416)	4.47108 (86112416)	3.42165 (86112416)	2.57921 (86112516)
3107000.0	2.79234 (86030916)	3.24097 (86030916)	3.51760 (86112416)	4.67504 (86112416)	3.60188 (86031816)
3106900.0	2.99027 (86111116)	3.01125 (86052716)	3.14432 (86081116)	3.67781 (86081116)	3.77704 (86112416)
3106800.0	3.43875 (86111116)	3.90366 (86111116)	4.06712 (86111116)	3.66106 (86052716)	3.10641 (86052716)
3106700.0	3.23741 (86110816)	3.38142 (86110816)	3.49222 (86040416)	3.50763 (86040416)	2.89147 (86040416)
3106600.0	4.06826 (86111016)	3.78918 (86111016)	3.22028 (86111016)	3.17881 (86091516)	2.78682 (86091516)
3106500.0	3.47410 (86091516)	3.85956 (86091516)	4.11238 (86091516)	3.91465 (86091516)	3.35280 (86033016)
3106400.0	3.45894 (86091716)	3.36586 (86091716)	3.67424 (86033016)	3.98010 (86101916)	3.46601 (86032916)
3106300.0	3.28386 (86101916)	3.98411 (86101916)	3.80250 (86101916)	3.79867 (86032916)	3.97763 (86032916)
3106200.0	3.62183 (86111408)	3.86324 (86120616)	4.61401 (86010816)	3.58602 (86032916)	3.67522 (86101716)
3106100.0	3.59034 (86120616)	4.80554 (86010816)	3.37577 (86111324)	3.54015 (86101716)	3.57896 (86011216)
3106000.0	4.52597 (86010816)	3.36037 (86111324)	3.63856 (86120516)	3.68799 (86101716)	3.37848 (86011216)
3105900.0	3.15357 (86111324)	3.56535 (86120516)	3.72806 (86120516)	3.29057 (86102816)	2.41091 (86011216)
3105800.0	3.27256 (86120516)	3.72892 (86120516)	3.13967 (86102816)	3.22118 (86102816)	2.19959 (86121308)
3105700.0	3.53109 (86120516)	3.24068 (86120516)	3.25035 (86102816)	2.44489 (86102816)	2.54167 (86121308)
3105600.0	3.21052 (86120516)	2.97411 (86102816)	2.98492 (86102816)	1.72599 (86121308)	2.40575 (86120524)
3105500.0	2.69193 (86102816)	2.97499 (86102816)	2.31003 (86102816)	2.16706 (86121308)	2.24952 (86120524)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	1.55562 (86122324)	1.59063 (86031616)	2.32418 (86121116)	1.96025 (86121116)	2.11765 (86121216)
3107800.0	1.62775 (86082024)	1.68978 (86031616)	2.36415 (86121116)	2.01887 (86113016)	2.35270 (86121216)
3107700.0	2.09953 (86031408)	1.77733 (86031616)	2.38486 (86121116)	2.14889 (86113016)	2.57289 (86121216)
3107600.0	2.58722 (86031408)	1.83370 (86031616)	2.34792 (86121116)	2.24472 (86113016)	2.72668 (86121216)
3107500.0	2.83760 (86031408)	1.82896 (86031616)	2.40422 (86031616)	2.27204 (86113016)	2.74817 (86121216)
3107400.0	2.59359 (86031408)	1.76994 (86050616)	2.50567 (86031616)	2.20762 (86113016)	2.76398 (86032016)
3107300.0	1.85758 (86031408)	2.10103 (86050616)	2.53715 (86031616)	2.38816 (86032016)	3.12432 (86032016)
3107200.0	1.99252 (86052816)	2.40611 (86050616)	2.43287 (86031616)	2.68007 (86032016)	3.12410 (86032016)
3107100.0	2.62772 (86112516)	2.52383 (86050616)	2.74897 (86050616)	2.75590 (86032016)	2.96517 (86080216)
3107000.0	2.27210 (86112516)	2.24549 (86052816)	2.92334 (86050616)	2.32868 (86032016)	2.52211 (86080216)
3106900.0	3.02369 (86031816)	1.84219 (86052816)	1.97599 (86050616)	2.79351 (86072916)	1.34107 (86072916)
3106800.0	2.87917 (86081116)	4.13661 (86031816)	0.86828c(86081316)	4.12185 (86072916)	2.16272 (86022716)
3106700.0	2.82556 (86040416)	1.70342 (86052716)	1.89115 (86031816)	4.68398c(86071616)	3.43273c(86071616)
3106600.0	1.64595 (86060316)	2.67118 (86051016)	1.44274 (86032916)	1.33269 (86030116)	3.17303 (86041616)
3106500.0	3.64390 (86051016)	3.30839 (86032916)	1.52850 (86032924)	1.38379 (86011316)	4.19639 (86030116)
3106400.0	3.39528 (86032916)	1.96607 (86032816)	1.55912 (86032216)	1.54927 (86032116)	1.82696 (86032116)
3106300.0	2.92084 (86101716)	2.04926 (86032816)	2.00407 (86011116)	1.91218 (86021316)	1.89182 (86010516)
3106200.0	3.46743 (86011216)	2.11520 (86112116)	3.11217 (86011116)	2.43471 (86021316)	3.25301 (86010516)
3106100.0	2.51914 (86011216)	2.46421 (86032216)	3.57378 (86011116)	2.53438 (86021316)	2.75473 (86010516)
3106000.0	2.41882 (86121308)	2.53473 (86011116)	3.56741 (86011116)	2.39771 (86021316)	2.20660 (86010516)
3105900.0	2.36226 (86121308)	2.92602 (86011116)	3.33457 (86011116)	2.33141 (86011108)	1.82537 (86021316)
3105800.0	2.05649 (86032216)	3.04890 (86011116)	3.01979 (86011116)	2.57143 (86032108)	2.01624 (86011108)
3105700.0	2.37762 (86011108)	2.99876 (86011116)	2.95838 (86032108)	2.70415 (86032108)	2.34970 (86011108)
3105600.0	2.40978 (86011108)	2.84732 (86011116)	2.88218 (86032108)	2.71113 (86032108)	2.46567 (86011108)
3105500.0	2.22998 (86011108)	2.65309 (86011116)	2.76194 (86032108)	2.65045 (86032108)	2.44005 (86011108)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	1.88399 (86121216)	2.17526 (86020616)	1.77525 (86011024)	1.80739 (86011024)	2.09566 (86072924)
3107800.0	2.09091 (86020616)	2.18938 (86020616)	1.90875 (86031416)	1.85089 (86070416)	2.47812 (86072924)
3107700.0	2.39374 (86020616)	2.14884 (86032016)	1.84233 (86011024)	2.22950 (86072924)	2.46335 (86072924)
3107600.0	2.67764 (86032016)	2.22205 (86111716)	2.08977 (86070416)	2.52964 (86072924)	1.78549 (86072924)
3107500.0	2.85161 (86032016)	2.14255 (86111716)	2.39529 (86070416)	2.14457 (86072924)	1.50525 (86121016)
3107400.0	2.79938 (86111716)	2.31495 (86070416)	2.31584 (86011016)	1.78850 (86020416)	1.93866 (86030416)
3107300.0	2.69865 (86080216)	2.50134 (86070416)	2.09511 (86020416)	2.10256 (86030416)	2.23812 (86030416)
3107200.0	2.81553 (86080216)	2.29879 (86020416)	2.17828 (86030416)	2.44242 (86030416)	2.46089 (86022716)
3107100.0	2.31602 (86080216)	2.25016 (86020416)	2.54293 (86030416)	2.83287 (86022716)	3.28973 (86022716)
3107000.0	1.97363 (86020416)	2.31995 (86030416)	2.89315 (86022716)	3.24405 (86022716)	3.02754 (86022716)
3106900.0	1.82336 (86042016)	2.82581c(86071616)	2.82907c(86071616)	2.81878 (86072116)	2.92528 (86042516)
3106800.0	3.56345c(86071616)	3.54636c(86071616)	3.77471 (86071116)	3.84116 (86071116)	3.31049 (86071116)
3106700.0	2.63457 (86060616)	3.63093 (86081816)	4.08708 (86081816)	4.21272 (86070316)	4.39401 (86070316)
3106600.0	3.56455 (86041616)	3.74149 (86050916)	4.13527 (86050916)	3.99620 (86081816)	3.80943 (86081516)
3106500.0	4.04779 (86042216)	2.75506 (86041616)	4.30893 (86041616)	4.24493 (86041616)	3.80164 (86081716)
3106400.0	3.58180 (86030116)	4.27177 (86042216)	3.20258 (86042216)	3.66752 (86012716)	3.90408 (86030616)
3106300.0	2.09676 (86042216)	5.44845 (86030116)	3.50060 (86042216)	3.38840 (86042216)	3.67127 (86012016)
3106200.0	2.11071 (86041016)	2.52996 (86042216)	5.86148 (86030116)	2.77241 (86012724)	2.81193 (86042216)
3106100.0	3.55255 (86010516)	2.57125 (86120316)	2.52982 (86012724)	5.54240 (86030116)	2.97293 (86030116)
3106000.0	5.35242 (86010516)	1.74400 (86032116)	2.78710 (86120316)	2.59083 (86012724)	4.99096 (86030116)
3105900.0	4.85739 (86010516)	3.35432 (86010516)	2.19490 (86120316)	2.61254 (86120316)	2.52839 (86030116)
3105800.0	3.75090 (86010516)	4.90897 (86010516)	1.88117c(86030108)	2.43942 (86120316)	2.31230 (86120316)
3105700.0	2.87510 (86010516)	4.97332 (86010516)	2.75154 (86010516)	1.70308 (86120316)	2.38744 (86120316)
3105600.0	2.24933 (86010516)	4.19231 (86010516)	3.94069 (86010516)	1.81846c(86030108)	1.95592 (86120316)
3105500.0	1.79436 (86010516)	3.31763 (86010516)	4.30057 (86010516)	2.21396 (86010516)	1.66365c(86050724)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	2.48113 (86072924)	1.88346 (86022708)	1.51311 (86072208)	1.06277 (86031624)	1.17510 (86030416)
3107800.0	2.19914 (86072924)	1.41732 (86072208)	1.14091 (86072208)	1.28959 (86030416)	1.33603 (86030416)
3107700.0	1.41021 (86072924)	1.23048 (86072208)	1.42318 (86030416)	1.46836 (86030416)	1.50249 (86022224)
3107600.0	1.34958 (86121016)	1.57791 (86030416)	1.62396 (86030416)	1.42057 (86022224)	1.45426 (86022716)
3107500.0	1.75292 (86030416)	1.80637 (86030416)	1.41262 (86022724)	1.72170 (86022716)	1.99155 (86022716)
3107400.0	2.01644 (86030416)	1.68946 (86022716)	2.05460 (86022716)	2.36120 (86022716)	2.47393 (86022716)
3107300.0	2.05009 (86022716)	2.46466 (86022716)	2.77596 (86022716)	2.73744 (86022716)	2.44350 (86022716)
3107200.0	2.92319 (86022716)	3.16870 (86022716)	2.90305 (86022716)	2.48888 (86022716)	2.05815 (86022716)
3107100.0	3.32608 (86022716)	2.88989 (86022716)	2.32446 (86022716)	2.41024 (86040824)	2.76288 (86040824)
3107000.0	2.42064 (86022716)	2.39075 (86040824)	2.63638 (86040824)	2.40501 (86040824)	2.09829 (86040824)
3106900.0	2.78064 (86071116)	2.58460 (86071116)	2.25709 (86071116)	1.91047 (86071116)	1.59591 (86071116)
3106800.0	2.69646 (86030316)	2.78998 (86030316)	2.72401 (86030316)	2.57114 (86030316)	2.37950 (86030316)
3106700.0	4.32147 (86070316)	4.11020 (86070316)	3.83541 (86070316)	3.53357 (86070316)	3.23935 (86070316)
3106600.0	3.54787 (86081516)	3.23229 (86081516)	2.93152 (86040908)	2.81193 (86040908)	2.65491 (86040908)
3106500.0	3.48510 (86081716)	3.02760 (86081716)	2.68451 (86122416)	2.89406 (86122416)	2.96663 (86122416)
3106400.0	3.75375 (86030616)	2.87504 (86081716)	2.84038 (86081716)	2.66198 (86081716)	2.41174 (86081716)
3106300.0	3.35393 (86012716)	3.41623 (86030616)	3.61313 (86030616)	3.18083 (86030616)	2.47853 (86030616)
3106200.0	3.32141 (86012016)	3.36147 (86012016)	2.76816 (86012716)	2.68116 (86030616)	2.95703 (86030616)
3106100.0	2.17947 (86042216)	2.71855 (86012016)	3.00774 (86012016)	2.84205 (86012016)	2.36340 (86012016)
3106000.0	3.09032 (86030116)	2.36014 (86012708)	2.13593 (86012016)	2.54037 (86012016)	2.58529 (86012016)
3105900.0	4.41660 (86030116)	3.02449 (86030116)	2.44285 (86012708)	1.83225 (86022424)	2.12752 (86041608)
3105800.0	2.51111 (86030116)	3.91039 (86030116)	2.88028 (86030116)	2.40857 (86012708)	1.84948 (86011324)
3105700.0	2.00949 (86120316)	2.42502 (86030116)	3.47899 (86030116)	2.70366 (86030116)	2.31025 (86012708)
3105600.0	2.22233 (86120316)	1.78611 (86012724)	2.30489 (86030116)	3.11252 (86030116)	2.51920 (86030116)
3105500.0	2.02219 (86120316)	2.02490 (86120316)	1.71584 (86040924)	2.17124 (86030116)	2.80052 (86030116)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	23.25612	(86072712)	AT (	392100.00, 3106700.00)	GC	26.	12.03205	(86120313)	AT (	392400.00, 3106000.00)	GC
2.	21.28576	(86090514)	AT (	392000.00, 3106700.00)	GC	27.	11.88682	(86012713)	AT (	392400.00, 3106600.00)	GC
3.	21.17251	(86071613)	AT (	392100.00, 3106700.00)	GC	28.	11.86334	(86060713)	AT (	392200.00, 3106700.00)	GC
4.	21.11004	(86071614)	AT (	392000.00, 3106700.00)	GC	29.	11.85375	(86031412)	AT (	392000.00, 3106900.00)	GC
5.	18.71144	(86042112)	AT (	392000.00, 3106700.00)	GC	30.	11.80534	(86030115)	AT (	392100.00, 3106500.00)	GC
6.	15.29307	(86072914)	AT (	392000.00, 3106800.00)	GC	31.	11.67781	(86071613)	AT (	392000.00, 3106700.00)	GC
7.	14.45463	(86031412)	AT (	392000.00, 3107000.00)	GC	32.	11.51571	(86032212)	AT (	391800.00, 3106500.00)	GC
8.	14.19940	(86031412)	AT (	392000.00, 3107100.00)	GC	33.	11.47890	(86031412)	AT (	392000.00, 3107200.00)	GC
9.	14.19409	(86041714)	AT (	392100.00, 3106600.00)	GC	34.	11.34858	(86120313)	AT (	392200.00, 3106300.00)	GC
10.	13.68491	(86012711)	AT (	392200.00, 3106600.00)	GC	35.	11.22720	(86042214)	AT (	392200.00, 3106500.00)	GC
11.	13.47630	(86032612)	AT (	391800.00, 3106600.00)	GC	36.	11.18790	(86060316)	AT (	391600.00, 3106600.00)	GC
12.	13.28798	(86042112)	AT (	392100.00, 3106800.00)	GC	37.	11.15106	(86032917)	AT (	391900.00, 3106400.00)	GC
13.	13.11999	(86031813)	AT (	391800.00, 3106800.00)	GC	38.	11.15087	(86012714)	AT (	392400.00, 3106400.00)	GC
14.	13.07728	(86050511)	AT (	391800.00, 3106800.00)	GC	39.	11.10761	(86060316)	AT (	391700.00, 3106600.00)	GC
15.	13.02383	(86090514)	AT (	392100.00, 3106800.00)	GC	40.	11.10089	(86030115)	AT (	392300.00, 3106300.00)	GC
16.	13.01446	(86032912)	AT (	391800.00, 3106500.00)	GC	41.	11.00308	(86120313)	AT (	392300.00, 3106200.00)	GC
17.	12.79835	(86120313)	AT (	392300.00, 3106100.00)	GC	42.	10.97127	(86071115)	AT (	392100.00, 3106700.00)	GC
18.	12.78422	(86072912)	AT (	392200.00, 3106700.00)	GC	43.	10.93621	(86071614)	AT (	392100.00, 3106800.00)	GC
19.	12.68689	(86060713)	AT (	392100.00, 3106700.00)	GC	44.	10.90184	(86012711)	AT (	392600.00, 3106500.00)	GC
20.	12.58787	(86041714)	AT (	392200.00, 3106600.00)	GC	45.	10.78404	(86050916)	AT (	392100.00, 3106600.00)	GC
21.	12.50385	(86051013)	AT (	391700.00, 3106500.00)	GC	46.	10.71044	(86012713)	AT (	392600.00, 3106600.00)	GC
22.	12.50385	(86051014)	AT (	391700.00, 3106500.00)	GC	47.	10.65481	(86040216)	AT (	392100.00, 3106600.00)	GC
23.	12.22797	(86032917)	AT (	391900.00, 3106500.00)	GC	48.	10.65050	(86030114)	AT (	392300.00, 3106300.00)	GC
24.	12.22601	(86052714)	AT (	391700.00, 3106700.00)	GC	49.	10.63379	(86092216)	AT (	391800.00, 3106800.00)	GC
25.	12.04353	(86012713)	AT (	392500.00, 3106600.00)	GC	50.	10.58520	(86030114)	AT (	392400.00, 3106200.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	5.86148	(86030116)	AT (	392400.00, 3106200.00)	GC	26.	4.19113	(86030316)	AT (	392500.00, 3106700.00)	GC
2.	5.54240	(86030116)	AT (	392500.00, 3106100.00)	GC	27.	4.14787	(86031308)	AT (	391300.00, 3107200.00)	GC
3.	5.44845	(86030116)	AT (	392300.00, 3106300.00)	GC	28.	4.13661	(86031816)	AT (	391800.00, 3106800.00)	GC
4.	5.35242	(86010516)	AT (	392200.00, 3106000.00)	GC	29.	4.13527	(86050916)	AT (	392400.00, 3106600.00)	GC
5.	4.99096	(86030116)	AT (	392600.00, 3106000.00)	GC	30.	4.12664	(86111016)	AT (	391100.00, 3106600.00)	GC
6.	4.97332	(86010516)	AT (	392300.00, 3105700.00)	GC	31.	4.12185	(86072916)	AT (	392000.00, 3106800.00)	GC
7.	4.90897	(86010516)	AT (	392300.00, 3105800.00)	GC	32.	4.11238	(86091516)	AT (	391400.00, 3106500.00)	GC
8.	4.85739	(86010516)	AT (	392200.00, 3105900.00)	GC	33.	4.11020	(86070316)	AT (	392800.00, 3106700.00)	GC
9.	4.80554	(86010816)	AT (	391300.00, 3106100.00)	GC	34.	4.09325	(86040816)	AT (	392500.00, 3106700.00)	GC
10.	4.68398c	(86071616)	AT (	392000.00, 3106700.00)	GC	35.	4.08708	(86081816)	AT (	392400.00, 3106700.00)	GC
11.	4.67504	(86112416)	AT (	391500.00, 3107000.00)	GC	36.	4.06826	(86111016)	AT (	391200.00, 3106600.00)	GC
12.	4.61401	(86010816)	AT (	391400.00, 3106200.00)	GC	37.	4.06712	(86111116)	AT (	391400.00, 3106800.00)	GC
13.	4.52597	(86010816)	AT (	391200.00, 3106000.00)	GC	38.	4.06590	(86040816)	AT (	392400.00, 3106700.00)	GC
14.	4.47108	(86112416)	AT (	391400.00, 3107100.00)	GC	39.	4.05968	(86010816)	AT (	391100.00, 3105900.00)	GC
15.	4.41660	(86030116)	AT (	392700.00, 3105900.00)	GC	40.	4.05746	(86091716)	AT (	391400.00, 3106500.00)	GC
16.	4.39401	(86070316)	AT (	392600.00, 3106700.00)	GC	41.	4.04779	(86042216)	AT (	392200.00, 3106500.00)	GC
17.	4.32147	(86070316)	AT (	392700.00, 3106700.00)	GC	42.	4.03980	(86111016)	AT (	391000.00, 3106600.00)	GC
18.	4.30893	(86041616)	AT (	392400.00, 3106500.00)	GC	43.	4.02886c	(86100516)	AT (	392500.00, 3106700.00)	GC
19.	4.30057	(86010516)	AT (	392400.00, 3105500.00)	GC	44.	3.99620	(86081816)	AT (	392500.00, 3106600.00)	GC
20.	4.27177	(86042216)	AT (	392300.00, 3106400.00)	GC	45.	3.99233	(86050916)	AT (	392500.00, 3106600.00)	GC
21.	4.24493	(86041616)	AT (	392500.00, 3106500.00)	GC	46.	3.99095	(86030316)	AT (	392600.00, 3106700.00)	GC
22.	4.21272	(86070316)	AT (	392500.00, 3106700.00)	GC	47.	3.98411	(86101916)	AT (	391300.00, 3106300.00)	GC
23.	4.20778	(86031308)	AT (	391200.00, 3107300.00)	GC	48.	3.98010	(86101916)	AT (	391500.00, 3106400.00)	GC
24.	4.19639	(86030116)	AT (	392100.00, 3106500.00)	GC	49.	3.97763	(86032916)	AT (	391600.00, 3106300.00)	GC
25.	4.19231	(86010516)	AT (	392300.00, 3105600.00)	GC	50.	3.97414	(86031308)	AT (	391100.00, 3107400.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	23.25612	ON 86072712:	AT (392100.00, 3106700.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	2.02808 (84022716)	1.83646 (84032016)	2.52645 (84032724)	2.03662 (84042308)	2.69245 (84030524)
3107800.0	2.40505 (84022716)	1.95036 (84032016)	2.55905 (84032724)	2.00359 (84032724)	2.85692 (84030524)
3107700.0	2.82865 (84022716)	2.06430 (84032016)	2.56731 (84032724)	1.96401 (84032724)	2.98914 (84030524)
3107600.0	3.21445 (84022716)	2.16542 (84032016)	2.50877 (84032724)	1.86437 (84032724)	3.17582 (84032816)
3107500.0	3.38508 (84022716)	2.38529 (84022716)	2.42423 (84032016)	1.69581 (84030524)	3.57002 (84032816)
3107400.0	3.16805 (84022716)	2.89476 (84022716)	2.53081 (84032016)	1.82680 (84032816)	3.91105 (84032816)
3107300.0	2.61686 (84022716)	3.38787 (84022716)	2.49964 (84032016)	2.22972 (84032816)	4.20558 (84032816)
3107200.0	2.90837 (84022708)	3.42819 (84022716)	2.21301 (84032016)	2.58828 (84032816)	4.78152 (84030616)
3107100.0	2.56666 (84072616)	2.50607 (84022716)	2.25997 (84080216)	2.62626 (84032816)	4.42889 (84030616)
3107000.0	3.36712 (84072816)	2.42958 (84050716)	1.98262 (84080216)	2.05118 (84032816)	4.03205 (84050316)
3106900.0	3.77341 (84072916)	2.01430 (84072816)	1.49912 (84050716)	3.80836 (84030616)	5.34756 (84050316)
3106800.0	2.77511 (84080416)	2.64888 (84072916)	1.13954 (84042216)	4.71810 (84050316)	4.99489 (84050216)
3106700.0	2.45209 (84021116)	1.79103 (84021116)	1.50209 (84040216)	6.08628 (84050216)	4.28785 (84062516)
3106600.0	3.42128 (84092316)	3.25352 (84092316)	3.40407 (84070416)	7.97485 (84022816)	7.79744 (84032908)
3106500.0	2.72540 (84090716)	2.24833 (84112208)	2.67078 (84030816)	2.09781 (84022916)	6.00180 (84022816)
3106400.0	2.14731 (84110216)	2.74427 (84090816)	3.40370 (84112316)	1.49221 (84020716)	3.42070 (84022916)
3106300.0	3.65752 (84090816)	2.29760 (84050916)	3.52019 (84112316)	1.74506 (84030116)	4.27083 (84022916)
3106200.0	3.25882 (84050916)	2.75545 (84112324)	4.38667 (84112316)	2.22173 (84112224)	3.08084 (84100116)
3106100.0	3.15364 (84012116)	3.53599 (84112324)	4.40713 (84112316)	3.33424 (84112224)	2.94236 (84100116)
3106000.0	2.69918 (84012116)	3.21181 (84112324)	4.26147 (84112324)	4.02273 (84112224)	2.46657 (84100116)
3105900.0	2.96377 (84112324)	3.20269 (84112316)	4.24597 (84112324)	4.31884 (84112224)	2.19315 (84030116)
3105800.0	3.20176 (84112324)	3.25333 (84112316)	4.07706 (84112324)	4.34428 (84112224)	2.20671 (84112816)
3105700.0	2.86757 (84112324)	3.08238 (84112316)	3.83255 (84112324)	4.20924 (84112224)	2.46957 (84112816)
3105600.0	2.38568 (84112324)	2.90309 (84112308)	3.55367 (84112324)	3.97941 (84112224)	2.55521 (84112816)
3105500.0	1.97940 (84112324)	2.81399 (84112308)	3.28100 (84112324)	3.72245 (84112224)	2.52238 (84112816)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	2.51811 (84030524)	2.72903 (84032816)	3.06670 (84050408)	3.22066 (84042316)	4.01182 (84042316)
3107800.0	2.73107 (84032816)	3.10779 (84032816)	3.36485 (84050408)	4.12573 (84042316)	3.74557 (84042316)
3107700.0	3.06462 (84032816)	3.37446 (84032816)	3.37823 (84042316)	4.52879 (84042316)	2.86208 (84042316)
3107600.0	3.52380 (84032816)	3.53683 (84050408)	4.57507 (84042316)	3.94837 (84042316)	1.86645 (84042316)
3107500.0	4.05079 (84032816)	3.62690 (84050408)	4.93425 (84042316)	2.61489 (84042316)	2.22425 (84050316)
3107400.0	4.33605 (84030616)	4.56797 (84042316)	3.68484 (84042316)	2.43994 (84050316)	3.62510 (84050416)
3107300.0	3.85132 (84030616)	4.53350 (84042316)	2.77608 (84050316)	3.74407 (84050416)	3.74721 (84050416)
3107200.0	4.30741 (84050316)	3.48737 (84050316)	3.68812 (84050316)	3.95902 (84050416)	2.71500 (84082008)
3107100.0	4.69799 (84050316)	3.94517 (84050316)	3.89997 (84050416)	2.75147 (84062916)	2.88902 (84063016)
3107000.0	3.97791 (84050316)	3.29272 (84050416)	3.20480 (84062916)	3.44384 (84063016)	2.77093 (84063016)
3106900.0	3.15546 (84050216)	3.38588 (84063016)	3.23056 (84063016)	3.21260c(84101616)	3.31362 (84082016)
3106800.0	3.27089 (84063016)	3.14964 (84082016)	3.79391 (84082016)	3.54355 (84082016)	3.32308 (84082016)
3106700.0	3.73825 (84062516)	3.52921c(84060216)	4.12300 (84051516)	4.19215 (84051516)	4.01842 (84092808)
3106600.0	6.75070 (84032908)	5.80544 (84032908)	5.91436 (84032908)	5.20427 (84032908)	4.36965 (84032908)
3106500.0	11.92017 (84032916)	3.65216 (84040516)	5.52400 (84032908)	4.47351 (84032908)	3.45058 (84032908)
3106400.0	3.83209 (84022808)	7.51597 (84032916)	8.54855 (84032916)	4.32412 (84040516)	4.18385 (84032908)
3106300.0	3.25277 (84042416)	4.01723 (84022808)	6.84518 (84022816)	8.32971 (84032916)	5.87213 (84032916)
3106200.0	5.50046 (84022916)	4.26840 (84022824)	4.50799 (84011116)	5.82352 (84022816)	5.77802 (84032916)
3106100.0	6.37024 (84022916)	4.02270 (84022908)	4.62020 (84022824)	4.93436 (84011116)	4.69891 (84022816)
3106000.0	3.72678 (84011916)	5.70277 (84022916)	3.85726 (84022824)	4.34567 (84022824)	4.87577 (84011116)
3105900.0	4.19121 (84011916)	5.76829 (84022916)	3.88582 (84022908)	4.44076 (84022824)	3.86968 (84022824)
3105800.0	3.55958 (84011916)	3.81613 (84022916)	4.84820 (84022916)	3.43360 (84022908)	4.41443 (84022824)
3105700.0	2.64725 (84011916)	4.40317 (84011916)	4.74225 (84022916)	3.36832 (84022916)	3.06305 (84022824)
3105600.0	1.91410 (84100116)	4.15899 (84011916)	3.53381 (84022916)	3.99094 (84022916)	2.98431 (84030716)
3105500.0	1.83449 (84112816)	3.46118 (84011916)	3.73555 (84011916)	3.88931 (84022916)	2.93522 (84022916)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	2.86047 (84042316)	1.53946 (84042316)	1.72511 (84022216)	1.93494 (84050416)	2.34809 (84050416)
3107800.0	2.06360 (84042316)	1.74679 (84022216)	2.01883 (84050416)	2.57278 (84050416)	2.26795 (84050416)
3107700.0	1.70445 (84022216)	2.08708 (84050416)	2.82123 (84050416)	2.50388 (84050416)	2.48152 (84050824)
3107600.0	2.13362 (84050416)	3.08981 (84050416)	2.77388 (84050416)	2.58823 (84050824)	2.82311 (84082008)
3107500.0	3.36739 (84050416)	3.08029 (84050416)	2.66508 (84050824)	2.92337 (84082008)	2.72355 (84082008)
3107400.0	3.42065 (84050416)	2.78735 (84082008)	2.96572 (84082008)	2.57225 (84082008)	1.70038 (84063016)
3107300.0	2.88344 (84082008)	2.89700 (84082008)	2.16205 (84082008)	2.04066 (84063016)	1.82017 (84063016)
3107200.0	2.55622 (84082008)	2.46648 (84063016)	2.28500 (84063016)	2.38263 (84062608)	3.40264 (84062608)
3107100.0	2.86310 (84063016)	2.32470 (84062608)	3.62823 (84062608)	4.05652 (84062608)	3.71628 (84062608)
3107000.0	3.44255 (84062608)	3.88619 (84062608)	3.32999 (84062608)	2.41216 (84062608)	2.72253 (84062316)
3106900.0	3.09568 (84082016)	3.46264 (84062316)	3.61092 (84062316)	3.34687 (84062316)	2.91703 (84062316)
3106800.0	3.11623 (84082016)	2.82933 (84082016)	2.55019c(84021716)	2.41152c(84021716)	2.22370c(84021716)
3106700.0	3.72251 (84092808)	3.35996 (84092808)	3.36265 (84062324)	3.27917 (84062324)	3.14008 (84062324)
3106600.0	4.12729 (84041716)	3.77431 (84041716)	3.37882 (84041716)	2.99476 (84041716)	2.65263 (84041716)
3106500.0	3.46672 (84040508)	3.25215 (84040508)	3.06118 (84041816)	2.96526 (84041816)	2.79134 (84041816)
3106400.0	4.06266 (84032908)	3.21151 (84032908)	2.94923 (84062216)	2.80699 (84040624)	2.97585 (84040624)
3106300.0	3.62593 (84032924)	3.19154 (84040516)	3.02234 (84032908)	2.75427 (84032908)	2.52132 (84010516)
3106200.0	6.12645 (84032916)	4.13903 (84032924)	3.21010 (84020424)	2.87925 (84020424)	2.38289 (84041724)
3106100.0	4.11223 (84032108)	5.06128 (84032916)	4.38663 (84032916)	3.40893 (84032924)	2.91967 (84020424)
3106000.0	4.34190 (84011116)	3.41474 (84110516)	4.19807 (84032108)	4.04000 (84032916)	3.26004 (84032916)
3105900.0	4.56783 (84011116)	4.16739 (84011116)	3.00055 (84022816)	3.61326 (84032108)	3.64099 (84032108)
3105800.0	3.34503 (84022824)	4.19276 (84011116)	3.91932 (84011116)	2.68975 (84011116)	3.03368 (84032108)
3105700.0	4.09901 (84022824)	2.89833 (84022824)	3.83397 (84011116)	3.64806 (84011116)	2.65227 (84011116)
3105600.0	3.37283 (84022824)	3.69648 (84022824)	2.52538 (84022824)	3.50433 (84011116)	3.37888 (84011116)
3105500.0	2.56404 (84022908)	3.42324 (84022824)	3.28943 (84022824)	2.39195 (84011116)	3.20726 (84011116)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH) AT	RECEPTOR (XR,YR) OF TYPE	RANK	CONC	(YYMMDDHH) AT	RECEPTOR (XR,YR) OF TYPE
1.	27.23253	(84070415) AT	(391900.00, 3106600.00) GC	26.	16.13060	(84050211) AT	(392000.00, 3106700.00) GC
2.	25.00744	(84072115) AT	(392100.00, 3106600.00) GC	27.	15.90458	(84032823) AT	(392100.00, 3106700.00) GC
3.	23.11395	(84032902) AT	(392100.00, 3106600.00) GC	28.	15.76749	(84062214) AT	(392100.00, 3106700.00) GC
4.	22.85117	(84022813) AT	(392000.00, 3106600.00) GC	29.	15.74490	(84032914) AT	(392100.00, 3106600.00) GC
5.	21.29594	(84042213) AT	(392000.00, 3106700.00) GC	30.	15.74201	(84062214) AT	(392200.00, 3106700.00) GC
6.	21.26228	(84062111) AT	(392000.00, 3106700.00) GC	31.	15.71502	(84022810) AT	(392300.00, 3106400.00) GC
7.	20.90967	(84010513) AT	(392100.00, 3106600.00) GC	32.	15.65812	(84070214) AT	(392000.00, 3106800.00) GC
8.	20.28627	(84062511) AT	(392100.00, 3106700.00) GC	33.	15.55876	(84032904) AT	(392100.00, 3106600.00) GC
9.	20.26533	(84050314) AT	(392100.00, 3106800.00) GC	34.	15.29290	(84080713) AT	(391800.00, 3106400.00) GC
10.	20.01585	(84032912) AT	(392200.00, 3106500.00) GC	35.	15.21771	(84090913) AT	(392200.00, 3106600.00) GC
11.	19.87513	(84050314) AT	(392000.00, 3106700.00) GC	36.	15.17301	(84071214) AT	(392000.00, 3106700.00) GC
12.	19.07644	(84050213) AT	(392000.00, 3106700.00) GC	37.	15.04410	(84050312) AT	(392000.00, 3106800.00) GC
13.	18.85266	(84032908) AT	(392200.00, 3106600.00) GC	38.	14.80629	(84022803) AT	(392100.00, 3106500.00) GC
14.	18.70545	(84032712) AT	(392000.00, 3106800.00) GC	39.	14.73925	(84032905) AT	(392400.00, 3106600.00) GC
15.	18.30670	(84070613) AT	(392100.00, 3106700.00) GC	40.	14.72881	(84072214) AT	(392100.00, 3106700.00) GC
16.	18.23847	(84041613) AT	(392200.00, 3106600.00) GC	41.	14.71069	(84092312) AT	(391800.00, 3106600.00) GC
17.	17.83850	(84070213) AT	(392000.00, 3106700.00) GC	42.	14.43931	(84030612) AT	(392000.00, 3106900.00) GC
18.	17.57909	(84061415) AT	(391800.00, 3106500.00) GC	43.	14.38344	(84022804) AT	(392300.00, 3106400.00) GC
19.	17.50415	(84022811) AT	(392000.00, 3106600.00) GC	44.	14.27804	(84022906) AT	(391700.00, 3106700.00) GC
20.	17.08176	(84050813) AT	(392000.00, 3106800.00) GC	45.	14.26487	(84022813) AT	(392100.00, 3106500.00) GC
21.	16.95499	(84032908) AT	(392300.00, 3106600.00) GC	46.	14.15663	(84061415) AT	(391900.00, 3106600.00) GC
22.	16.53796	(84032915) AT	(392200.00, 3106500.00) GC	47.	14.13183	(84022814) AT	(392200.00, 3106300.00) GC
23.	16.53563	(84022808) AT	(392000.00, 3106600.00) GC	48.	13.97252	(84050313) AT	(392000.00, 3106800.00) GC
24.	16.32635	(84040212) AT	(391800.00, 3106800.00) GC	49.	13.83053	(84050311) AT	(392100.00, 3106900.00) GC
25.	16.15078	(84032911) AT	(392200.00, 3106500.00) GC	50.	13.80083	(84032908) AT	(392400.00, 3106600.00) GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)	OF TYPE
1.	11.92017	(84032916)	AT (	392200.00, 3106500.00)	GC	26.	5.70277	(84022916)	AT (	392300.00, 3106000.00)	GC
2.	8.54855	(84032916)	AT (	392400.00, 3106400.00)	GC	27.	5.65741	(84092216)	AT (	391000.00, 3106700.00)	GC
3.	8.32971	(84032916)	AT (	392500.00, 3106300.00)	GC	28.	5.52400	(84032908)	AT (	392400.00, 3106500.00)	GC
4.	7.97485	(84022816)	AT (	392000.00, 3106600.00)	GC	29.	5.50046	(84022916)	AT (	392200.00, 3106200.00)	GC
5.	7.79744	(84032908)	AT (	392100.00, 3106600.00)	GC	30.	5.45762	(84092216)	AT (	391400.00, 3106700.00)	GC
6.	7.51597	(84032916)	AT (	392300.00, 3106400.00)	GC	31.	5.34756	(84050316)	AT (	392100.00, 3106900.00)	GC
7.	6.84518	(84022816)	AT (	392400.00, 3106300.00)	GC	32.	5.23632	(84092216)	AT (	390900.00, 3106700.00)	GC
8.	6.75070	(84032908)	AT (	392200.00, 3106600.00)	GC	33.	5.23366	(84022808)	AT (	392000.00, 3106600.00)	GC
9.	6.50007	(84022816)	AT (	392300.00, 3106400.00)	GC	34.	5.20427	(84032908)	AT (	392500.00, 3106600.00)	GC
10.	6.37024	(84022916)	AT (	392200.00, 3106100.00)	GC	35.	5.06128	(84032916)	AT (	392800.00, 3106100.00)	GC
11.	6.21302	(84092216)	AT (	391200.00, 3106700.00)	GC	36.	5.03963	(84022808)	AT (	392500.00, 3106200.00)	GC
12.	6.12645	(84032916)	AT (	392700.00, 3106200.00)	GC	37.	4.99489	(84050216)	AT (	392100.00, 3106800.00)	GC
13.	6.12199	(84022808)	AT (	392400.00, 3106300.00)	GC	38.	4.93436	(84011116)	AT (	392500.00, 3106100.00)	GC
14.	6.10250	(84092216)	AT (	391300.00, 3106700.00)	GC	39.	4.93425	(84042316)	AT (	392400.00, 3107500.00)	GC
15.	6.08628	(84050216)	AT (	392000.00, 3106700.00)	GC	40.	4.87577	(84011116)	AT (	392600.00, 3106000.00)	GC
16.	6.06922	(84022808)	AT (	392300.00, 3106400.00)	GC	41.	4.84820	(84022916)	AT (	392400.00, 3105800.00)	GC
17.	6.01202	(84092216)	AT (	391100.00, 3106700.00)	GC	42.	4.81549	(84092216)	AT (	390800.00, 3106700.00)	GC
18.	6.00180	(84022816)	AT (	392100.00, 3106500.00)	GC	43.	4.80274	(84032924)	AT (	392600.00, 3106300.00)	GC
19.	5.97727	(84022808)	AT (	392100.00, 3106500.00)	GC	44.	4.78152	(84030616)	AT (	392100.00, 3107200.00)	GC
20.	5.91436	(84032908)	AT (	392400.00, 3106600.00)	GC	45.	4.76151	(84032108)	AT (	392600.00, 3106200.00)	GC
21.	5.87213	(84032916)	AT (	392600.00, 3106300.00)	GC	46.	4.74772	(84032108)	AT (	392500.00, 3106300.00)	GC
22.	5.82352	(84022816)	AT (	392500.00, 3106200.00)	GC	47.	4.74225	(84022916)	AT (	392400.00, 3105700.00)	GC
23.	5.80544	(84032908)	AT (	392300.00, 3106600.00)	GC	48.	4.71810	(84050316)	AT (	392000.00, 3106800.00)	GC
24.	5.77802	(84032916)	AT (	392600.00, 3106200.00)	GC	49.	4.70019	(84041616)	AT (	392200.00, 3106600.00)	GC
25.	5.76829	(84022916)	AT (	392300.00, 3105900.00)	GC	50.	4.69891	(84022816)	AT (	392600.00, 3106100.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	27.23253	ON 84070415:	AT (391900.00, 3106600.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	11.92017	ON 84032916:	AT (392200.00, 3106500.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 764 Informational Message(s)

A Total of 763 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISC MODEL RESULTS
CO 1- AND 8-HOUR
100 METER GRID
YEAR: 1985

```
NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
```

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
8. "Upper Bound" Values for Supersquat Buildings.
9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 2 Short Term Average(s) of: 1-HR 8-HR

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: CO

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: S30C085.dta ; **Output Print File: S30C085.lst
**File for Saving Result Arrays: CO.SAV
**Detailed Error/Message File: S30C085a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.74000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.3,	0	2	4.9,	10.0,	0	3	4.9,	11.4,	0	4	4.9,	12.5,	0	5	4.9,	12.7,	0	6	4.6,	36.9,	0
7	4.6,	37.8,	0	8	4.6,	37.8,	0	9	4.6,	15.7,	0	10	4.6,	18.9,	0	11	4.6,	23.4,	0	12	4.6,	27.1,	0
13	4.6,	45.4,	0	14	4.6,	45.0,	0	15	4.6,	43.4,	0	16	4.6,	40.5,	0	17	4.6,	36.3,	0	18	4.6,	31.9,	0
19	4.6,	32.3,	0	20	4.6,	32.6,	0	21	4.6,	32.6,	0	22	4.6,	32.0,	0	23	4.6,	34.9,	0	24	4.6,	36.9,	0
25	4.6,	37.8,	0	26	4.6,	37.8,	0	27	4.6,	15.7,	0	28	4.6,	18.9,	0	29	4.6,	23.4,	0	30	4.6,	27.1,	0
31	4.6,	45.4,	0	32	4.6,	45.0,	0	33	4.6,	43.4,	0	34	4.6,	40.5,	0	35	4.6,	36.3,	0	36	4.6,	31.9,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: ltampa85.bin FORMAT: UNFORM
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1985 YEAR: 1985

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN
85	1	1	1	291.0	3.09	293.2	6	1764.0	428.0
85	1	1	2	298.0	3.60	292.6	5	1764.0	428.0
85	1	1	3	294.0	3.09	292.0	6	1764.0	428.0
85	1	1	4	303.0	4.63	292.0	5	1764.0	428.0
85	1	1	5	303.0	3.60	292.0	5	1764.0	428.0
85	1	1	6	312.0	3.60	291.5	5	1764.0	428.0
85	1	1	7	315.0	3.09	291.5	6	1764.0	428.0
85	1	1	8	313.0	2.06	291.5	5	169.0	556.0
85	1	1	9	287.0	3.60	293.2	4	435.0	757.0
85	1	1	10	311.0	4.63	295.4	3	701.0	959.0
85	1	1	11	304.0	5.14	297.0	4	967.0	1160.0
85	1	1	12	296.0	5.14	299.3	3	1232.0	1361.0
85	1	1	13	333.0	5.14	300.4	3	1498.0	1563.0
85	1	1	14	329.0	4.63	300.9	3	1764.0	1764.0
85	1	1	15	342.0	3.09	300.9	3	1764.0	1764.0
85	1	1	16	24.0	3.09	300.9	3	1764.0	1764.0
85	1	1	17	11.0	2.57	300.4	4	1764.0	1764.0
85	1	1	18	7.0	2.06	297.6	5	1764.0	1733.0
85	1	1	19	4.0	1.54	296.5	6	1764.0	1650.0
85	1	1	20	307.0	2.06	297.0	6	1764.0	1568.0
85	1	1	21	310.0	3.09	295.9	6	1764.0	1486.0
85	1	1	22	302.0	4.12	295.4	5	1764.0	1404.0
85	1	1	23	320.0	4.63	294.8	5	1764.0	1321.0
85	1	1	24	300.0	3.60	294.3	5	1764.0	1239.0

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	4.90242 (85102716)	5.05954 (85083015)	5.07695 (85083022)	5.43928 (85083012)	5.50555 (85022312)
3107800.0	4.95828 (85083013)	5.28696 (85102716)	5.40335 (85112111)	5.60706 (85083010)	5.80671 (85083012)
3107700.0	5.26396 (85083011)	5.43453 (85083013)	5.70088 (85102716)	5.91157 (85112111)	6.09739 (85083010)
3107600.0	5.35155 (85083023)	5.62509 (85083011)	5.94350 (85083013)	6.13499 (85102716)	6.42838 (85112111)
3107500.0	5.46354 (85071220)	5.70946 (85032106)	6.05382 (85032104)	6.45898 (85083013)	6.58894 (85021110)
3107400.0	5.89610 (85103008)	5.99206 (85090122)	6.08035 (85032106)	6.72920 (85083101)	6.92213 (85083013)
3107300.0	6.13983 (85103008)	6.73251 (85103008)	6.42523 (85103008)	6.98498 (85030410)	7.44264 (85112024)
3107200.0	6.03720 (85111713)	6.41468 (85082913)	7.09598 (85103008)	7.62585 (85103008)	7.83922 (85112102)
3107100.0	6.13990 (85112021)	6.58158 (85112812)	6.96183 (85111713)	7.37971 (85112104)	8.09427 (85103008)
3107000.0	6.31260 (85112019)	6.61293 (85041915)	6.91722 (85112021)	7.18106 (85112812)	7.99170 (85112020)
3106900.0	6.44059 (85041118)	6.90233 (85030714)	7.34085 (85041117)	7.91821 (85022112)	7.77199 (85112019)
3106800.0	6.46500 (85050520)	6.94204 (85041110)	7.38970 (85110912)	8.03862 (85041122)	8.50352 (85041122)
3106700.0	6.50970 (85111923)	7.00184 (85111923)	7.50617 (85111923)	8.25149 (85030712)	8.99381 (85030712)
3106600.0	6.49570 (85111816)	7.01244 (85102712)	7.55987 (85102712)	8.05262 (85102712)	8.66704 (85022221)
3106500.0	6.48578 (85092016)	6.98628 (85111815)	7.47716 (85111815)	7.59622 (85111815)	8.17870 (85030721)
3106400.0	6.38948 (85111814)	6.86552 (85111914)	7.35245 (85030711)	7.66762 (85091720)	8.48692 (85091518)
3106300.0	6.38323 (85101815)	6.68513 (85091514)	7.09443 (85091514)	7.72565 (85092013)	8.18543 (85022115)
3106200.0	6.13245 (85030716)	6.57038 (85091911)	7.04588 (85101816)	7.49965 (85100917)	8.10309 (85091413)
3106100.0	6.09244 (85092816)	6.47220 (85100917)	6.85389 (85091517)	7.24279 (85091516)	7.67479 (85050421)
3106000.0	5.92152 (85091811)	6.17310 (85030622)	6.60467 (85091515)	6.93452 (85030620)	7.08934 (85043015)
3105900.0	5.73253 (85091416)	5.96995 (85091808)	6.16645 (85030620)	6.68680 (85091417)	7.12816 (85043016)
3105800.0	5.52566 (85111917)	5.87044 (85043015)	6.08586 (85091417)	6.41194 (85043016)	6.59346 (85040908)
3105700.0	5.38869 (85091616)	5.58730 (85091708)	5.84546 (85052621)	5.95701 (85040908)	6.27690 (85091423)
3105600.0	5.12700 (85091708)	5.38752 (85100809)	5.39302 (85040908)	5.82694 (85091423)	6.06212 (85091418)
3105500.0	5.01575 (85100809)	4.92919 (85092908)	5.36258 (85091423)	5.52917 (85091418)	5.76660 (85091821)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	5.60085 (85022311)	5.86020 (85083014)	6.06971 (85112112)	6.15165 (85070419)	6.22834 (85013110)
3107800.0	5.86753 (85022312)	6.22172 (85083104)	6.05757 (85050515)	6.47319 (85090106)	6.49946 (85013110)
3107700.0	6.19361 (85021115)	6.60482 (85090115)	6.68147 (85102708)	6.88601 (85112112)	7.08405 (85021112)
3107600.0	6.55533 (85021111)	6.98356 (85022312)	7.05407 (85022311)	7.18770 (85020111)	7.80063 (85070419)
3107500.0	7.05475 (85112110)	7.43688 (85083102)	7.46700 (85090115)	7.49357 (85083104)	8.21185 (85090103)
3107400.0	7.28409 (85112109)	7.60758 (85112110)	8.30556 (85083102)	8.39592 (85022311)	8.37331 (85020111)
3107300.0	7.81412 (85112103)	8.27724 (85022212)	7.73190 (85112110)	8.05676 (85022312)	7.90246 (85083104)
3107200.0	8.13594 (85112024)	8.99568 (85112103)	9.56760 (85022212)	8.37836 (85083102)	7.94680 (85022311)
3107100.0	8.18581 (85103008)	9.70166 (85083103)	9.59387 (85112103)	10.70438 (85022212)	9.59183 (85083102)
3107000.0	8.17517 (85112104)	8.55860 (85103008)	10.02390 (85083103)	8.77942 (85032711)	10.76419 (85022212)
3106900.0	7.28051 (85112021)	7.65943 (85042212)	8.65087 (85042213)	9.97598 (85041113)	10.36145 (85041114)
3106800.0	8.87892 (85041116)	9.23044 (85041116)	9.02060 (85041111)	9.24029 (85042114)	9.11228 (85042212)
3106700.0	9.57173 (85030712)	9.70982 (85030712)	9.33187 (85082814)	9.86463 (85041813)	9.28744 (85082813)
3106600.0	9.04916 (85022221)	8.85060 (85022221)	9.23404 (85091512)	10.81670 (85091512)	10.80575 (85091512)
3106500.0	9.41878 (85030721)	9.80176 (85091720)	9.48702 (85091518)	10.18446 (85043013)	9.92542 (85043013)
3106400.0	9.36814 (85091518)	9.50750 (85091412)	8.57880 (85091812)	9.17508 (85091411)	9.12327 (85091712)
3106300.0	8.20457 (85100917)	9.25908 (85091415)	10.12232 (85091411)	8.57337 (85100810)	9.85000 (85040911)
3106200.0	8.83516 (85091411)	8.08434 (85030620)	7.80859 (85091417)	8.81317 (85040909)	9.57871 (85040910)
3106100.0	7.63785 (85043015)	8.18375 (85043016)	8.35011 (85040908)	8.81735 (85040910)	8.25180 (85122111)
3106000.0	7.81958 (85043016)	7.96787 (85040908)	7.96327 (85091418)	8.45556 (85040903)	8.63703 (85091816)
3105900.0	7.29467 (85040908)	7.47250 (85040904)	7.90815 (85040910)	7.99682 (85122111)	8.16360 (85031808)
3105800.0	6.92512 (85040904)	7.33407 (85040910)	7.24482 (85011208)	7.88119 (85091816)	7.28624 (85020815)
3105700.0	6.43831 (85120310)	6.88731 (85040903)	6.91620 (85122111)	7.77261 (85061412)	7.45978 (85031810)
3105600.0	6.05507 (85091821)	6.47645 (85122111)	6.96415 (85061412)	7.12954 (85061412)	6.98125 (85011211)
3105500.0	5.78927 (85020616)	5.85447 (85091816)	7.25128 (85061412)	6.18511 (85020815)	6.65136 (85022016)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	6.47268 (85112114)	6.69061 (85020208)	7.49945 (85020208)	6.48381 (85051116)	6.25932 (85010324)
3107800.0	6.73444 (85040509)	6.84666 (85090111)	7.78454 (85020208)	6.98638 (85090114)	6.61623 (85103014)
3107700.0	7.26554 (85090110)	7.51723 (85090111)	8.00253 (85020208)	7.53457 (85090114)	7.13825 (85121312)
3107600.0	7.87152 (85090110)	7.91214 (85090111)	8.03047 (85103124)	8.19695 (85090112)	7.93552 (85040516)
3107500.0	8.83750 (85090102)	9.07408 (85090101)	8.93956 (85083123)	9.12554 (85090112)	8.44966 (85040516)
3107400.0	8.43405 (85090102)	9.70341 (85090101)	10.05537 (85083123)	10.28855 (85083115)	7.92758 (85040516)
3107300.0	8.51703 (85070419)	8.72367 (85090101)	11.37087 (85083110)	11.24765 (85083115)	10.70471 (85083119)
3107200.0	8.28015 (85022313)	11.53431 (85090102)	12.41723 (85083110)	11.41392 (85083115)	12.88570 (85083119)
3107100.0	8.23757 (85030411)	10.53025 (85090102)	12.18506 (85083110)	9.71858 (85083115)	13.58370 (85083120)
3107000.0	8.97407 (85102714)	7.70699 (85022412)	9.36566 (85083110)	7.63906 (85121213)	12.44545 (85083121)
3106900.0	8.15338 (85022212)	7.31596 (85102714)	9.90758 (85090101)	20.33661 (85083119)	22.15286 (85083112)
3106800.0	13.93787 (85041113)	10.27585 (85032014)	11.97075 (85090102)	33.82975 (85083120)	13.62149 (85052114)
3106700.0	13.72407 (85041111)	21.08011 (85041111)	4.36140 (85041114)	30.29050 (85032513)	18.32637 (85072414)
3106600.0	12.62301 (85041012)	22.96233 (85043013)	27.87265 (85040911)	12.26208 (85092612)	21.10927 (85032313)
3106500.0	12.56006 (85091913)	22.10120 (85040911)	6.03237 (85122612)	6.64651 (85092715)	12.66248 (85040312)
3106400.0	12.31541 (85040911)	12.68935 (85040912)	8.79985 (85031813)	5.93741 (85120612)	8.28034 (85092614)
3106300.0	10.12575 (85070314)	6.91685 (85041712)	8.84321 (85031813)	8.66298 (85012605)	7.32934 (85092613)
3106200.0	9.40629 (85040913)	9.04126 (85031810)	9.55337 (85031813)	11.95809 (85012605)	8.12865 (85012611)
3106100.0	8.23709 (85022015)	7.72733 (85012609)	10.58252 (85042016)	11.99646 (85012605)	7.86011 (85012611)
3106000.0	9.33712 (85031810)	8.78602 (85012609)	10.66866 (85042016)	10.61808 (85012605)	8.73624 (85012213)
3105900.0	9.04002 (85031810)	8.51405 (85091317)	10.02248 (85042016)	9.55077 (85121414)	8.16460 (85012213)
3105800.0	8.38698 (85070909)	8.73432 (85091317)	9.11386 (85042016)	8.39998 (85121414)	7.79628 (85121916)
3105700.0	7.42940 (85012610)	8.09330 (85091317)	8.16830 (85042016)	7.52662 (85012024)	7.33449 (85040118)
3105600.0	7.17956 (85012609)	7.10302 (85091317)	7.36765 (85031807)	6.98824 (85120610)	7.24642 (85040118)
3105500.0	6.41053 (85012609)	6.16130 (85122603)	7.26331 (85031807)	6.49288 (85121914)	6.80060 (85040118)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	6.34914 (85033112)	6.32356 (85011713)	6.06429 (85033111)	6.03340 (85013114)	5.86012 (85011714)
3107800.0	6.71889 (85020517)	6.71666 (85070615)	6.63260 (85033114)	6.40886 (85010402)	6.14755 (85103011)
3107700.0	7.29500 (85020113)	7.20779 (85040518)	7.08484 (85013114)	6.81655 (85011714)	6.63301 (85040517)
3107600.0	8.00497 (85040515)	7.92243 (85020211)	7.67703 (85020115)	6.75570 (85103011)	6.90841 (85031704)
3107500.0	8.99529 (85083118)	8.29840 (85020613)	7.78388 (85011714)	7.83596 (85103019)	7.20591 (85020114)
3107400.0	9.67778 (85103115)	9.52864 (85083116)	8.37719 (85083112)	7.81067 (85061505)	7.93107 (85062912)
3107300.0	11.19928 (85083120)	10.41759 (85083113)	9.80375 (85061505)	8.32708 (85020114)	8.08278 (85103123)
3107200.0	12.47786 (85083121)	11.52778 (85083112)	9.85410 (85020114)	9.00563 (85103123)	8.33547 (85052016)
3107100.0	13.20891 (85083117)	10.21995 (85020114)	9.51379 (85103123)	7.86640 (85103112)	7.86269 (85110111)
3107000.0	10.64015 (85052013)	8.77728 (85040513)	8.62749 (85062913)	9.30362 (85110111)	8.05327 (85050311)
3106900.0	8.15069 (85052114)	10.57843 (85050313)	9.14740 (85041414)	11.34133 (85110104)	9.10368 (85103111)
3106800.0	10.68631 (85041414)	11.23538 (85050314)	10.25817 (85062911)	9.82137 (85031706)	10.21907 (85031706)
3106700.0	12.82995 (85062813)	10.43762 (85062813)	10.20321 (85062813)	9.21541 (85060113)	9.36602 (85050316)
3106600.0	17.91509 (85021206)	11.98984 (85051714)	10.33930 (85051714)	9.13245 (85041614)	9.43736 (85063015)
3106500.0	15.91770 (85021214)	13.38195 (85021203)	11.55419 (85021201)	11.83002 (85021209)	10.43358 (85021206)
3106400.0	8.79373 (85040312)	12.68152 (85021211)	12.75755 (85021217)	11.78404 (85021203)	10.19602 (85021204)
3106300.0	9.87454 (85122512)	9.37169 (85040312)	12.23246 (85021213)	10.93345 (85010412)	10.01830 (85021215)
3106200.0	9.19142 (85092614)	9.78724 (85122512)	9.50941 (85110414)	9.85491 (85021213)	9.46105 (85021211)
3106100.0	10.17603 (85110407)	10.09805 (85110412)	9.28984 (85122513)	8.99504 (85110414)	8.79178 (85110415)
3106000.0	8.98789 (85040117)	9.09219 (85120216)	9.40533 (85110411)	8.67132 (85122513)	8.07641 (85110414)
3105900.0	8.93240 (85012611)	13.55437 (85110407)	8.42677 (85012023)	8.17407 (85122512)	7.74445 (85122510)
3105800.0	7.93231 (85012611)	11.29238 (85110407)	10.25027 (85110407)	7.74122 (85040816)	7.16149 (85122516)
3105700.0	6.93226 (85012606)	7.52745 (85010504)	13.27825 (85110407)	6.88415 (85040120)	6.91315 (85092615)
3105600.0	7.04800 (85012213)	6.99586 (85122506)	11.67392 (85110407)	9.79456 (85110407)	6.43167 (85092417)
3105500.0	6.53059 (85012213)	6.58879 (85122911)	8.06505 (85110407)	11.87606 (85110407)	6.04863 (85040120)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	5.63596 (85020512)	5.50767 (85061210)	5.11168 (85032918)	5.20570 (85072417)	4.95051 (85102916)
3107800.0	5.99313 (85103118)	5.62813 (85102815)	5.55574 (85072417)	5.19001 (85062912)	5.18134 (85121215)
3107700.0	6.06886 (85102815)	6.09601 (85013115)	5.79874 (85062912)	5.63517 (85121215)	5.16823 (85031617)
3107600.0	6.73838 (85103016)	6.48140 (85062912)	6.12990 (85121215)	5.71586 (85052016)	5.51829 (85103112)
3107500.0	7.21624 (85062912)	6.65360 (85121215)	6.45395 (85052016)	6.04629 (85103112)	5.86919 (85062915)
3107400.0	7.17487 (85121215)	7.24392 (85052016)	6.40762 (85103112)	6.17296 (85062915)	5.70581 (85110111)
3107300.0	7.98923 (85052016)	6.74377 (85062915)	6.32244 (85052218)	6.42228 (85110111)	6.23010 (85041416)
3107200.0	7.13666 (85062915)	7.74481 (85110111)	7.26527 (85052017)	6.82843 (85050311)	6.44683 (85062910)
3107100.0	8.14292 (85052017)	7.82194 (85050311)	7.49425 (85062910)	7.00055 (85110114)	6.45326 (85103111)
3107000.0	8.66303 (85110104)	8.07345 (85103111)	7.37636 (85103111)	6.88276 (85061213)	6.72672 (85061213)
3106900.0	7.50215 (85061213)	7.48789 (85061213)	7.78028 (85052516)	7.23347 (85031706)	6.79487 (85042717)
3106800.0	9.34975 (85110112)	8.85761 (85061215)	8.16652 (85061215)	7.51788 (85061216)	6.81327 (85063016)
3106700.0	9.11834 (85050316)	8.56013 (85122420)	7.97800 (85122420)	7.44495 (85042716)	6.99893 (85042716)
3106600.0	9.12935 (85063015)	8.39080 (85063015)	7.86832 (85051215)	7.39336 (85060815)	6.98290 (85060815)
3106500.0	9.70106 (85021206)	8.49052 (85051415)	7.84494 (85051719)	7.25059 (85061016)	6.79845 (85031016)
3106400.0	9.51372 (85021201)	8.53180 (85021212)	8.02683 (85051716)	7.32936 (85051718)	6.85668 (85051515)
3106300.0	9.04811 (85010501)	7.77465 (85010502)	7.62788 (85042915)	7.06354 (85051518)	6.61191 (85051723)
3106200.0	8.46637 (85021218)	7.99898 (85010408)	7.35813 (85022715)	6.82252 (85031710)	6.54467 (85052916)
3106100.0	8.11499 (85010421)	7.61550 (85010417)	7.14296 (85110515)	6.65100 (85010403)	6.29625 (85022715)
3106000.0	7.59007 (85110415)	7.08548 (85012901)	6.87911 (85051417)	6.57026 (85051617)	6.09286 (85040216)
3105900.0	7.33907 (85040218)	6.86537 (85010406)	6.48932 (85110517)	6.23440 (85022716)	5.94563 (85051417)
3105800.0	6.84463 (85121406)	6.63508 (85030917)	6.24826 (85010406)	5.85246 (85012217)	5.69907 (85121404)
3105700.0	6.43751 (85012017)	6.18130 (85121406)	6.10844 (85030917)	5.74453 (85012015)	5.42705 (85042910)
3105600.0	6.29547 (85092615)	6.07838 (85092517)	5.70357 (85092518)	5.61324 (85030917)	5.34769 (85041718)
3105500.0	5.91840 (85040816)	5.76018 (85052518)	5.58380 (85092517)	5.34271 (85092518)	5.25396 (85060518)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00
3107900.0	2.03049 (85083016)	2.04241 (85102908)	1.96188 (85083016)	1.91597 (85083016)	1.68092 (85083016)
3107800.0	2.27690 (85102808)	2.20093 (85083016)	2.13750 (85083016)	2.10971 (85083016)	2.00199 (85083016)
3107700.0	2.83165 (85083008)	2.50861 (85102808)	2.38604 (85083016)	2.30150 (85083016)	2.25664 (85083016)
3107600.0	3.10689 (85083008)	3.13321 (85083008)	2.76864 (85102808)	2.58245 (85083016)	2.46732 (85083016)
3107500.0	2.49067 (85090124)	3.08293 (85083008)	3.41821 (85083008)	3.05353 (85102808)	2.78159 (85083016)
3107400.0	1.98720 (85022408)	2.43575 (85090124)	2.88216 (85083008)	3.62698 (85083008)	3.34922 (85102808)
3107300.0	1.81969 (85042224)	1.86619 (85022408)	2.18376 (85090124)	2.75002 (85090124)	3.65561 (85083008)
3107200.0	2.58157 (85112024)	2.15328 (85042224)	2.04001 (85042224)	2.13050 (85112108)	2.53071 (85090124)
3107100.0	2.97759 (85112024)	3.24298 (85112024)	3.16848 (85112024)	2.51367 (85112024)	2.51255 (85042216)
3107000.0	3.76086 (85041308)	3.40430 (85041308)	3.20252 (85112024)	3.68263 (85112024)	3.76273 (85112024)
3106900.0	3.37061 (85041308)	3.97242 (85041308)	4.46025 (85041308)	4.59967 (85041308)	4.07128 (85041308)
3106800.0	2.36327 (85090724)	2.61933 (85041124)	3.06826 (85041124)	3.55498 (85041124)	3.98103 (85041124)
3106700.0	3.23169 (85042124)	3.37700 (85042124)	3.49913 (85042124)	3.72111 (85082816)	4.09569 (85082816)
3106600.0	2.90884 (85112008)	3.00234 (85112008)	3.18698 (85112016)	3.35854 (85112016)	3.43968 (85112016)
3106500.0	3.22970 (85111916)	3.38667 (85111916)	3.49118 (85111916)	3.49508 (85111916)	3.33617 (85111916)
3106400.0	2.46684 (85111916)	2.58864 (85030716)	2.90763 (85030716)	3.01986 (85030716)	3.44410 (85120916)
3106300.0	2.45848 (85110824)	2.81524 (85041216)	3.41815 (85041216)	3.96113 (85041216)	4.02830 (85041216)
3106200.0	3.45983 (85041216)	3.77758 (85041216)	3.71535 (85041216)	3.66481 (85091416)	4.80284 (85091416)
3106100.0	3.21908 (85041216)	3.05386 (85091416)	3.93606 (85091416)	4.24968 (85091416)	3.75025 (85030624)
3106000.0	3.24014 (85091416)	3.64594 (85091416)	3.45386 (85030624)	3.22560 (85030624)	2.91926 (85091708)
3105900.0	3.04968 (85030624)	3.12862 (85030624)	2.70249 (85030624)	2.86970 (85091708)	2.85772 (85092008)
3105800.0	2.72198 (85030624)	2.46879 (85091708)	2.78698 (85092008)	2.74432 (85092008)	3.09972 (85091424)
3105700.0	2.45263 (85091708)	2.81416 (85092008)	2.59711 (85092008)	2.85104 (85091424)	3.18255 (85091424)
3105600.0	2.76816 (85092008)	2.43685 (85092008)	2.61684 (85091424)	2.98503 (85091424)	3.06543 (85040916)
3105500.0	2.32324 (85120408)	2.54503 (85100908)	2.77653 (85091424)	2.69106 (85040916)	2.60896 (85040916)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391200.00	391300.00	391400.00	391500.00	391600.00
3107900.0	1.66776 (85022316)	1.43934 (85113008)	2.37102 (85090108)	2.62662 (85090108)	2.43298 (85112124)
3107800.0	1.76326 (85022316)	1.74487 (85022316)	2.06269 (85090108)	2.89487 (85090108)	2.57731 (85090108)
3107700.0	2.04612 (85083016)	2.03918 (85022316)	1.72233 (85022316)	2.92101 (85090108)	3.01807 (85090108)
3107600.0	2.38564 (85083016)	2.02231 (85083016)	2.21870 (85022316)	2.51627 (85090108)	3.44265 (85090108)
3107500.0	2.62134 (85083016)	2.46306 (85083016)	2.42020 (85022316)	2.21581 (85022316)	3.56939 (85090108)
3107400.0	2.96475 (85083016)	2.72772 (85083016)	2.38588 (85083016)	2.76066 (85022316)	2.96449 (85090108)
3107300.0	3.60667 (85102808)	3.06491 (85021116)	2.79609 (85082616)	2.50936 (85022316)	2.75649 (85022316)
3107200.0	3.47455 (85112108)	3.83202 (85112108)	3.30128 (85082616)	3.10259 (85082616)	2.93975 (85022316)
3107100.0	2.57793 (85112108)	3.36940 (85112108)	4.17369 (85112108)	3.83138 (85082616)	3.08993 (85082616)
3107000.0	2.91999 (85112024)	3.13848 (85042216)	3.10279 (85041916)	3.91326 (85112108)	4.02722 (85082616)
3106900.0	3.51775 (85112024)	3.72226 (85112024)	3.67852 (85042216)	3.89902 (85041916)	3.03248 (85041916)
3106800.0	4.16935 (85041124)	3.97216 (85041308)	3.51744 (85111416)	3.33961 (85042216)	3.56668 (85042216)
3106700.0	4.50995 (85082816)	4.94221 (85082816)	5.31376 (85082816)	5.37407 (85082816)	4.62099 (85082816)
3106600.0	3.52205 (85111916)	3.54846 (85101716)	3.74566 (85101716)	3.60761 (85101716)	2.93217 (85041016)
3106500.0	3.21180 (85030716)	3.66735 (85050516)	4.29667 (85050516)	4.86720 (85120916)	3.76596 (85120916)
3106400.0	4.19941 (85120916)	4.80345 (85120916)	4.62824 (85120916)	4.82247 (85091416)	3.33768 (85043016)
3106300.0	4.29679 (85091416)	5.52107 (85091416)	4.04744 (85100916)	4.18382 (85043016)	3.72780 (85040916)
3106200.0	4.64671 (85091416)	3.43733 (85100916)	4.08105 (85043016)	3.46093 (85040916)	5.94556 (85040916)
3106100.0	3.07668 (85091616)	3.61323 (85043016)	3.46165 (85091424)	5.57568 (85040916)	4.24461 (85040916)
3106000.0	3.08737 (85043016)	3.51772 (85091424)	4.84129 (85040916)	4.41425 (85040916)	2.51102 (85040916)
3105900.0	3.34948 (85091424)	4.07761 (85040916)	4.24755 (85040916)	2.84248 (85040916)	2.27671 (85020808)
3105800.0	3.40270 (85040916)	3.89259 (85040916)	2.93334 (85040916)	1.75914 (85040916)	2.77983 (85020808)
3105700.0	3.47530 (85040916)	2.89587 (85040916)	1.93761 (85040916)	2.29897 (85020808)	2.61910 (85020808)
3105600.0	2.77757 (85040916)	2.00247 (85040916)	1.67554 (85020808)	2.67702 (85020808)	2.05532 (85020808)
3105500.0	2.00964 (85040916)	1.42499 (85011308)	2.05379 (85020808)	2.65823 (85020808)	1.88610 (85020724)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391700.00	391800.00	391900.00	392000.00	392100.00
3107900.0	3.79890 (85121308)	2.73024 (85112116)	2.41836 (85090116)	2.79886 (85083116)	3.27052 (85121316)
3107800.0	3.72903 (85121308)	2.95499 (85112116)	2.56116 (85090116)	3.08896 (85083116)	3.51314 (85121316)
3107700.0	3.41856 (85112124)	3.27886 (85112124)	2.70785 (85090116)	3.41531 (85083116)	3.68478 (85121316)
3107600.0	3.03099 (85112124)	3.56244 (85112124)	2.83421 (85090116)	3.78995 (85083116)	3.68867 (85121316)
3107500.0	3.38364 (85090108)	3.65580 (85112124)	2.97196 (85083116)	4.19147 (85083116)	3.41936 (85121316)
3107400.0	3.89909 (85090108)	3.42112 (85112124)	3.19801 (85083116)	4.55725 (85083116)	2.88017 (85121316)
3107300.0	3.99954 (85090108)	3.41566 (85090108)	3.34124 (85083116)	4.77386 (85083116)	2.64258 (85083124)
3107200.0	2.95711 (85090108)	3.85808 (85090108)	3.28257 (85083116)	4.61487 (85083116)	4.10526 (85083124)
3107100.0	2.76741 (85022316)	3.51359 (85090108)	2.81849 (85083116)	3.72122 (85083116)	5.37466 (85083124)
3107000.0	2.69978 (85072116)	2.29067 (85072116)	2.33037 (85082516)	2.01239 (85083116)	5.76606 (85083124)
3106900.0	3.11635 (85082616)	2.15713 (85072116)	2.54300 (85090108)	4.17347 (85083124)	4.85488 (85083116)
3106800.0	4.46748 (85041116)	3.35896 (85032016)	2.49298 (85090108)	11.33686 (85083124)	2.99154 (85032816)
3106700.0	4.35277 (85082816)	4.54372 (85041116)	1.13911 (85032016)	3.78631 (85032516)	5.02783 (85072416)
3106600.0	3.76070 (85041016)	3.36518 (85043016)	5.93593 (85040916)	2.06485 (85040316)	6.39437 (85021208)
3106500.0	3.27769 (85091616)	5.15243 (85040916)	1.11999 (85031816)	1.27389 (85092616)	2.89384 (85040316)
3106400.0	3.40738 (85040916)	4.11682 (85040916)	1.50192 (85031816)	0.91909 (85120616)	2.68724 (85092616)
3106300.0	5.29612 (85040916)	1.65292 (85041716)	1.87684 (85062416)	1.29748 (85122116)	3.50171 (85092616)
3106200.0	3.45582 (85040916)	1.60092 (85100616)	2.22130 (85031816)	2.50680 (85121416)	3.02817 (85092616)
3106100.0	1.73591 (85011316)	2.10440 (85012616)	2.44452 (85031816)	3.27571 (85121416)	2.40253 (85092616)
3106000.0	2.06525 (85020808)	2.45130 (85012616)	2.39371 (85031816)	3.49449 (85121416)	1.93349 (85092616)
3105900.0	1.82284 (85020808)	2.32479 (85011216)	2.21735 (85031816)	3.39250 (85121416)	2.13091 (85012608)
3105800.0	2.12535 (85011216)	2.12123 (85011216)	2.00129 (85031816)	3.14562 (85121416)	2.26103 (85012608)
3105700.0	2.28387 (85011216)	2.01567 (85012108)	1.88467 (85120224)	2.98505 (85011208)	2.24288 (85120608)
3105600.0	2.27788 (85011216)	1.90233 (85012108)	2.05634 (85120224)	3.04612 (85011208)	2.34342 (85120608)
3105500.0	2.17602 (85011216)	1.73627 (85012108)	2.16432 (85120224)	3.01306 (85011208)	2.33089 (85120608)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392200.00	392300.00	392400.00	392500.00	392600.00
3107900.0	2.67162 (85121316)	2.29268 (85012424)	2.48668 (85012424)	2.71107 (85033116)	2.61127 (85031708)
3107800.0	2.38684 (85121316)	2.47594 (85012424)	2.93995 (85033116)	2.40523 (85033116)	2.99727 (85031708)
3107700.0	2.29868 (85020516)	2.62836 (85012424)	3.20239 (85033116)	3.01571 (85031708)	2.88144 (85031708)
3107600.0	2.50250 (85020516)	3.13366 (85033116)	3.07374 (85083124)	3.38237 (85031708)	2.25927 (85103124)
3107500.0	2.88549 (85083124)	3.63763 (85033116)	3.40198 (85031708)	2.92722 (85103124)	2.23559 (85102816)
3107400.0	3.66657 (85083124)	4.09263 (85083124)	3.51689 (85031708)	2.61481 (85102816)	2.64669 (85050308)
3107300.0	4.60465 (85083124)	3.34429 (85083124)	2.89163 (85100316)	2.51674 (85050308)	1.97055 (85050308)
3107200.0	5.42358 (85083124)	3.61760 (85100316)	2.59493 (85052016)	2.29642 (85032816)	2.04632 (85062916)
3107100.0	4.32195 (85083116)	3.31690 (85052016)	2.67580 (85032816)	2.66459 (85062916)	3.37754 (85062916)
3107000.0	3.79549 (85052016)	2.87845 (85032816)	3.39603 (85062916)	3.91768 (85062916)	4.22913 (85050316)
3106900.0	2.36918 (85032816)	3.89051 (85062916)	4.43894 (85050316)	3.76469 (85050316)	2.98957 (85052216)
3106800.0	4.45706 (85062916)	3.37705 (85062916)	3.63579c(85081716)	3.49397 (85101116)	3.78542 (85041616)
3106700.0	3.70228 (85060116)	3.96956 (85062816)	5.29823 (85042816)	5.73213 (85042816)	5.54477 (85042816)
3106600.0	7.76077 (85051716)	6.13412 (85051716)	5.98714 (85051716)	5.09320 (85051716)	4.87375 (85060216)
3106500.0	5.74117 (85021216)	4.06295 (85021208)	5.16608 (85021208)	4.99266 (85051716)	5.28285 (85051716)
3106400.0	2.07509 (85040316)	5.05580 (85021216)	6.46296 (85010416)	4.25423 (85010416)	4.78923 (85021208)
3106300.0	3.72920 (85122516)	2.62752 (85110416)	4.33524 (85021216)	6.39198 (85010416)	6.67501 (85010416)
3106200.0	3.88799 (85092616)	4.92099 (85122516)	2.82281 (85110416)	3.40334 (85021216)	4.61414 (85021224)
3106100.0	3.85856 (85092616)	3.41083 (85110416)	4.71095 (85012024)	2.79313 (85121408)	3.13427 (85110416)
3106000.0	3.14080 (85092616)	3.95213 (85012116)	3.99095 (85122516)	4.51723 (85012024)	2.61914 (85121408)
3105900.0	3.11390 (85120616)	3.13452 (85121416)	3.85053 (85012116)	4.03190 (85122516)	4.05536 (85012024)
3105800.0	2.66583 (85120616)	2.89432 (85010508)	3.68475 (85012116)	2.95268 (85012116)	3.66560 (85122516)
3105700.0	2.03990 (85120616)	3.15469 (85120616)	2.68986 (85010508)	3.56670 (85012116)	2.79057 (85122516)
3105600.0	1.97535 (85010516)	2.91175 (85120616)	2.78945c(85012124)	3.12077 (85012116)	2.93628 (85012116)
3105500.0	2.16605 (85010516)	2.43626 (85120616)	2.69097 (85120616)	2.34747c(85012124)	3.08448 (85012116)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE 1ST HIGHEST 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392700.00	392800.00	392900.00	393000.00	393100.00
3107900.0	2.66153 (85031708)	1.81440 (85103124)	1.49759 (85102816)	2.04062 (85050308)	1.88594 (85050308)
3107800.0	2.28465 (85031708)	1.72762 (85102816)	2.10822 (85050308)	2.05079 (85050308)	1.41919 (85050308)
3107700.0	1.94903 (85102816)	2.12879 (85050308)	2.22436 (85050308)	1.53211 (85050308)	1.28927 (85041424)
3107600.0	2.07558 (85050308)	2.39769 (85050308)	1.65268 (85050308)	1.29894 (85041424)	1.31644 (85041424)
3107500.0	2.55218 (85050308)	1.77764 (85050308)	1.29182 (85041424)	1.43322 (85062916)	1.90967c(85040424)
3107400.0	1.89963 (85050308)	1.31514 (85063008)	1.79950 (85062916)	2.00603 (85062916)	2.25037 (85052024)
3107300.0	1.58497 (85062916)	2.26530 (85062916)	2.32301 (85062916)	2.52840 (85052024)	2.66109c(85100516)
3107200.0	2.81243 (85062916)	2.65610 (85062916)	3.13241c(85100516)	2.79199 (85050316)	2.26338 (85050316)
3107100.0	3.49601c(85100516)	3.48730 (85050316)	2.77176 (85050316)	2.28054 (85052216)	1.83538 (85052216)
3107000.0	3.35727 (85050316)	2.73565 (85052216)	2.08541 (85101116)	2.09347 (85101116)	2.01259 (85101116)
3106900.0	2.83958 (85101116)	2.76256 (85101116)	2.56144 (85101116)	2.45655 (85041616)	2.46339 (85041616)
3106800.0	3.88666 (85041616)	3.69097 (85041616)	3.36643 (85041616)	3.30655 (85042816)	3.22910 (85042816)
3106700.0	5.08361 (85042816)	4.54435 (85042816)	4.01817 (85042816)	3.53661 (85042816)	3.11672 (85042816)
3106600.0	4.45243 (85060216)	3.97664 (85060216)	3.52152 (85060216)	3.11334 (85060216)	2.75738 (85060216)
3106500.0	4.76343 (85051716)	4.01958 (85051716)	3.32502 (85051716)	2.75305 (85051716)	2.45903 (85032416)
3106400.0	4.17233 (85021208)	4.04615 (85051724)	4.03597 (85051724)	3.65921 (85051724)	3.19560 (85051724)
3106300.0	4.38902 (85010416)	3.82937 (85010424)	3.82108 (85010424)	3.33195 (85010424)	3.10582 (85051724)
3106200.0	6.30958 (85010416)	5.61418 (85010416)	3.85129 (85010416)	3.14791 (85010424)	3.21302 (85010424)
3106100.0	3.84166 (85021224)	4.94116 (85010416)	5.35162 (85010416)	4.54450 (85010416)	3.27330 (85010416)
3106000.0	2.82406 (85110416)	3.07919 (85021224)	3.74705 (85021224)	4.50079 (85010416)	4.42714 (85010416)
3105900.0	2.36881 (85121408)	2.49368 (85110416)	2.46687 (85021224)	3.19539 (85021224)	3.56421 (85010416)
3105800.0	3.54082 (85012024)	2.19908 (85122916)	2.19568 (85110416)	2.00656 (85021224)	2.67585 (85021224)
3105700.0	3.24280 (85012024)	3.08324 (85012024)	2.06109 (85122916)	1.93702 (85110416)	1.77602 (85051708)
3105600.0	2.77828 (85122516)	3.01622 (85012024)	2.69149 (85012024)	1.92080 (85122916)	1.71589 (85110416)
3105500.0	2.22593 (85012116)	2.61861 (85122516)	2.76496 (85012024)	2.36086 (85012024)	1.78574 (85122916)

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)		OF TYPE	RANK	CONC	(YYMMDDHH)	AT	RECEPTOR (XR,YR)		OF TYPE
1.	33.82975	(85083120)	AT (	392000.00,	3106800.00)	GC	26.	16.36746	(85051113)	AT (	392000.00,	3106700.00)	GC
2.	30.29050	(85032513)	AT (	392000.00,	3106700.00)	GC	27.	16.04922	(85051414)	AT (	392200.00,	3106600.00)	GC
3.	27.87265	(85040911)	AT (	391900.00,	3106600.00)	GC	28.	15.91770	(85021214)	AT (	392200.00,	3106500.00)	GC
4.	22.96233	(85043013)	AT (	391800.00,	3106600.00)	GC	29.	15.65678	(85051514)	AT (	392200.00,	3106600.00)	GC
5.	22.15286	(85083112)	AT (	392100.00,	3106900.00)	GC	30.	15.61003	(85050213)	AT (	392000.00,	3106800.00)	GC
6.	22.10120	(85040911)	AT (	391800.00,	3106500.00)	GC	31.	15.54403	(85052012)	AT (	392000.00,	3106800.00)	GC
7.	21.10927	(85032313)	AT (	392100.00,	3106600.00)	GC	32.	15.42780	(85050212)	AT (	392000.00,	3106800.00)	GC
8.	21.08011	(85041111)	AT (	391800.00,	3106700.00)	GC	33.	15.40356	(85021203)	AT (	392100.00,	3106600.00)	GC
9.	21.03621	(85033012)	AT (	392000.00,	3106700.00)	GC	34.	15.23533	(85051711)	AT (	392200.00,	3106600.00)	GC
10.	20.33661	(85083119)	AT (	392000.00,	3106900.00)	GC	35.	14.94175	(85051714)	AT (	392200.00,	3106600.00)	GC
11.	20.15980	(85052114)	AT (	392000.00,	3106700.00)	GC	36.	14.83963	(85052314)	AT (	392100.00,	3106700.00)	GC
12.	19.71024	(85040412)	AT (	392000.00,	3106700.00)	GC	37.	14.80282	(85083121)	AT (	392000.00,	3106800.00)	GC
13.	19.18457	(85051614)	AT (	392100.00,	3106600.00)	GC	38.	14.64709	(85052813)	AT (	392100.00,	3106600.00)	GC
14.	18.72576	(85051612)	AT (	392100.00,	3106600.00)	GC	39.	14.49797	(85083119)	AT (	392000.00,	3106800.00)	GC
15.	18.39430	(85080112)	AT (	392000.00,	3106700.00)	GC	40.	14.22054	(85041012)	AT (	391800.00,	3106600.00)	GC
16.	18.32637	(85072414)	AT (	392100.00,	3106700.00)	GC	41.	13.93787	(85041113)	AT (	391700.00,	3106800.00)	GC
17.	18.13308	(85081714)	AT (	392100.00,	3106700.00)	GC	42.	13.79763	(85051613)	AT (	392200.00,	3106600.00)	GC
18.	18.00854	(85062911)	AT (	392100.00,	3106700.00)	GC	43.	13.72407	(85041111)	AT (	391700.00,	3106700.00)	GC
19.	17.91509	(85021206)	AT (	392200.00,	3106600.00)	GC	44.	13.69085	(85040413)	AT (	392000.00,	3106800.00)	GC
20.	17.88772	(85080816)	AT (	392100.00,	3106700.00)	GC	45.	13.62149	(85052114)	AT (	392100.00,	3106800.00)	GC
21.	17.79930	(85051712)	AT (	392100.00,	3106600.00)	GC	46.	13.58370	(85083120)	AT (	392100.00,	3107100.00)	GC
22.	17.36179	(85052514)	AT (	392100.00,	3106700.00)	GC	47.	13.55437	(85110407)	AT (	392300.00,	3105900.00)	GC
23.	17.08592	(85072413)	AT (	392100.00,	3106700.00)	GC	48.	13.53525	(85051614)	AT (	392200.00,	3106600.00)	GC
24.	17.00592	(85032813)	AT (	392000.00,	3106700.00)	GC	49.	13.41720	(85070314)	AT (	391900.00,	3106600.00)	GC
25.	16.52769	(85061112)	AT (	392000.00,	3106700.00)	GC	50.	13.40873	(85051512)	AT (	392100.00,	3106600.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 50 8-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

RANK	CONC	(YYMMDDHH) AT	RECEPTOR (XR,YR) OF TYPE		RANK	CONC	(YYMMDDHH) AT	RECEPTOR (XR,YR) OF TYPE	
1.	11.33686	(85083124) AT	(392000.00, 3106800.00)	GC	26.	5.29823	(85042816) AT	(392400.00, 3106700.00)	GC
2.	7.76077	(85051716) AT	(392200.00, 3106600.00)	GC	27.	5.29612	(85040916) AT	(391700.00, 3106300.00)	GC
3.	6.67501	(85010416) AT	(392600.00, 3106300.00)	GC	28.	5.28887	(85051716) AT	(392100.00, 3106600.00)	GC
4.	6.46296	(85010416) AT	(392400.00, 3106400.00)	GC	29.	5.28285	(85051716) AT	(392600.00, 3106500.00)	GC
5.	6.39437	(85021208) AT	(392100.00, 3106600.00)	GC	30.	5.27111c	(85110516) AT	(392700.00, 3106200.00)	GC
6.	6.39198	(85010416) AT	(392500.00, 3106300.00)	GC	31.	5.22066c	(85110516) AT	(392500.00, 3106300.00)	GC
7.	6.30958	(85010416) AT	(392700.00, 3106200.00)	GC	32.	5.16608	(85021208) AT	(392400.00, 3106500.00)	GC
8.	6.13412	(85051716) AT	(392300.00, 3106600.00)	GC	33.	5.15243	(85040916) AT	(391800.00, 3106500.00)	GC
9.	5.98714	(85051716) AT	(392400.00, 3106600.00)	GC	34.	5.09320	(85051716) AT	(392500.00, 3106600.00)	GC
10.	5.94556	(85040916) AT	(391600.00, 3106200.00)	GC	35.	5.09190	(85062816) AT	(392500.00, 3106700.00)	GC
11.	5.93593	(85040916) AT	(391900.00, 3106600.00)	GC	36.	5.08361	(85042816) AT	(392700.00, 3106700.00)	GC
12.	5.76606	(85083124) AT	(392100.00, 3107000.00)	GC	37.	5.06046	(85060216) AT	(392500.00, 3106600.00)	GC
13.	5.74117	(85021216) AT	(392200.00, 3106500.00)	GC	38.	5.05580	(85021216) AT	(392300.00, 3106400.00)	GC
14.	5.73213	(85042816) AT	(392500.00, 3106700.00)	GC	39.	5.02783	(85072416) AT	(392100.00, 3106700.00)	GC
15.	5.64858	(85051516) AT	(392100.00, 3106600.00)	GC	40.	4.99986	(85021224) AT	(392500.00, 3106300.00)	GC
16.	5.61418	(85010416) AT	(392800.00, 3106200.00)	GC	41.	4.99266	(85051716) AT	(392500.00, 3106500.00)	GC
17.	5.57887	(85051616) AT	(392100.00, 3106600.00)	GC	42.	4.94221	(85082816) AT	(391300.00, 3106700.00)	GC
18.	5.57568	(85040916) AT	(391500.00, 3106100.00)	GC	43.	4.94116	(85010416) AT	(392800.00, 3106100.00)	GC
19.	5.54477	(85042816) AT	(392600.00, 3106700.00)	GC	44.	4.92800	(85021216) AT	(392500.00, 3106300.00)	GC
20.	5.52107	(85091416) AT	(391300.00, 3106300.00)	GC	45.	4.92712	(85062816) AT	(392400.00, 3106700.00)	GC
21.	5.42358	(85083124) AT	(392200.00, 3107200.00)	GC	46.	4.92099	(85122516) AT	(392300.00, 3106200.00)	GC
22.	5.37466	(85083124) AT	(392100.00, 3107100.00)	GC	47.	4.91872c	(85110516) AT	(392600.00, 3106300.00)	GC
23.	5.37407	(85082816) AT	(391500.00, 3106700.00)	GC	48.	4.87375	(85060216) AT	(392600.00, 3106600.00)	GC
24.	5.35162	(85010416) AT	(392900.00, 3106100.00)	GC	49.	4.86720	(85120916) AT	(391500.00, 3106500.00)	GC
25.	5.31376	(85082816) AT	(391400.00, 3106700.00)	GC	50.	4.85488	(85083116) AT	(392100.00, 3106900.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	33.82975	ON 85083120:	AT (392000.00, 3106800.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GR1DPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	11.33686	ON 85083124:	AT (392000.00, 3106800.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 535 Informational Message(s)

A Total of 535 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

ISC MODEL RESULTS
CO 1- AND 8-HOUR
100 METER GRID
YEAR: 1986

```
NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
```

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Use Calms Processing Routine.
5. Not Use Missing Data Processing Routine.
6. Default Wind Profile Exponents.
7. Default Vertical Potential Temperature Gradients.
8. "Upper Bound" Values for Supersquat Buildings.
9. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 2 Short Term Average(s) of: 1-HR 8-HR

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: CO

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)

**NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
m for Missing Hours
b for Both Calm and Missing Hours

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: S30C086.dta ; **Output Print File: S30C086.lst
**File for Saving Result Arrays: CO.SAV
**Detailed Error/Message File: S30C086a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.74000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.3,	0	2	4.9,	10.0,	0	3	4.9,	11.4,	0	4	4.9,	12.5,	0	5	4.9,	12.7,	0	6	4.6,	36.9,	0
7	4.6,	37.8,	0	8	4.6,	37.8,	0	9	4.6,	15.7,	0	10	4.6,	18.9,	0	11	4.6,	23.4,	0	12	4.6,	27.1,	0
13	4.6,	45.4,	0	14	4.6,	45.0,	0	15	4.6,	43.4,	0	16	4.6,	40.5,	0	17	4.6,	36.3,	0	18	4.6,	31.9,	0
19	4.6,	32.3,	0	20	4.6,	32.6,	0	21	4.6,	32.6,	0	22	4.6,	32.0,	0	23	4.6,	34.9,	0	24	4.6,	36.9,	0
25	4.6,	37.8,	0	26	4.6,	37.8,	0	27	4.6,	15.7,	0	28	4.6,	18.9,	0	29	4.6,	23.4,	0	30	4.6,	27.1,	0
31	4.6,	45.4,	0	32	4.6,	45.0,	0	33	4.6,	43.4,	0	34	4.6,	40.5,	0	35	4.6,	36.3,	0	36	4.6,	31.9,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

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1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
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NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: ltampa86.bin FORMAT: UNFORM
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1986 YEAR: 1986

YEAR	MONTH	DAY	HOUR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN
86	1	1	1	351.0	4.12	291.5	4	416.0	416.0
86	1	1	2	348.0	3.60	292.6	4	416.0	416.0
86	1	1	3	174.0	4.63	291.5	4	416.0	416.0
86	1	1	4	293.0	3.09	289.8	4	416.0	416.0
86	1	1	5	3.0	1.54	289.8	4	416.0	416.0
86	1	1	6	322.0	2.57	289.8	4	416.0	416.0
86	1	1	7	345.0	3.60	289.8	4	416.0	416.0
86	1	1	8	343.0	2.57	290.4	4	416.0	416.0
86	1	1	9	337.0	3.09	290.9	4	416.0	416.0
86	1	1	10	341.0	3.09	292.6	3	416.0	416.0
86	1	1	11	4.0	2.57	294.3	3	416.0	416.0
86	1	1	12	356.0	3.09	294.8	2	416.0	416.0
86	1	1	13	23.0	2.57	295.9	2	416.0	416.0
86	1	1	14	59.0	2.57	294.8	3	416.0	416.0
86	1	1	15	42.0	3.09	293.2	4	416.0	416.0
86	1	1	16	54.0	1.54	293.7	4	416.0	416.0
86	1	1	17	51.0	2.06	293.2	4	416.0	416.0
86	1	1	18	47.0	1.00	293.2	5	419.0	418.0
86	1	1	19	134.0	2.06	291.5	6	428.0	424.0
86	1	1	20	127.0	1.00	290.9	6	437.0	430.0
86	1	1	21	130.0	1.00	290.9	6	447.0	435.0
86	1	1	22	132.0	1.00	289.8	6	456.0	441.0
86	1	1	23	270.0	1.54	290.9	6	465.0	447.0
86	1	1	24	290.0	2.06	290.4	6	474.0	453.0

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF CO IN MICROGRAMS/CUBIC-METER **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZFLAG)	OF TYPE	NETWORK GRID-ID
ALL HIGH 1ST HIGH VALUE IS	5.86148	ON 86030116:	AT (392400.00, 3106200.00, 0.00, 0.00)	GC	E3

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 816 Informational Message(s)

A Total of 816 Calm Hours Identified

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCST2 Finishes Successfully ***
****

APPENDIX C

SITE SUMMARY TABLE AND VENDOR DATA

Phase III Station Characteristics 16-Mar-93

CS30.wk1

Compressor Station: Number 30
Name: Plant City
County: Hillsborough
Nearest City: Plant City
Compressor Supervisor: Mike Teal
Mailing Address: 1544 North Combee Road
Lakeland, Florida 33801
Telephone: (813) 665-0973
Latitude: 28-04-55 N
Longitude: 82-06-01 W
UTM Zone: 17
UTM Easting: 391.895 km
UTM Northing: 3106.610 km
Elevation (ft): 105

ENGINE IDENTIFICATION	3003

Phase III Engine Characteristics

Operating Time	8760
Hours/Day	24
Days/Week	7
Weeks/Year	52
Engine Type	Turbine
Engine Make	Solar
Engine Model	Saturn T-1200
Horsepower Rating (ISO)	1,202
Exhaust Temperature (F)	837
Mass Flow Rate (lbs/hr) (a)	49,918
Volumetric Flow Rate (acfm) (b)	27,854
Volumetric Flow Rate (dscfm) (b)	11,339
Ave. Fuel Consumption (MMscf/hr) (c)	0.0125
Max. Fuel Consumption (MMscf/hr) (c)	0.0125
Specific Fuel Consump. (Btu/bhp-hr)(a)	10,923
Maximum Heat Input (MMBtu/hr)	13.13

Phase III Stack Parameters

Stack Height (ft)	20
Stack Diameter (ft)	2.0
Stack to Building Offset (ft)	3.00
Building Height (ft) (d)	15.00
Building Length (ft) (d)	100.00
Building Width (ft) (d)	40.00

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 (%) (e)	0.031
Percent Ash (%)	N/A

16-Mar-93
CS30.wk1

ENGINE IDENTIFICATION 3003

Phase III Emissions Rates by Engine for Station 30

Grams/BHP-Hour		
	NOx (a)	1.49
	CO (a)	2.22
	NMHC (a)	0.095
	SO2 (f)	0.14
	PM (g)	0.024
Pounds/Hour		
	NOx	3.95
	CO	5.88
	NMHC	0.25
	SO2	0.37
	PM	0.064
Tons/Year		
	NOx	17.30
	CO	25.75
	NMHC	1.10
	SO2	1.62
	PM	0.28

Notes:
(a) Based on Manufacturer's Data
(b) Estimated
(c) Based on heating value of fuel gas.
(d) Engine enclosed in building; all dimensions are from plot plan No. STA-30-SK, issued 2/1/93.
(e) Percent by weight.
(f) Based on 10 grains S/100 SCF n.g. (assume full conversion).
(g) Based AP-42 factor of 5 lbs/MMSCF.

ISO Conditions

ENGINE MODEL : SATURN T-1200
ENGINE TYPE : CS/MD
ENGINE RATING: STANDARD
FUEL CLASS : GAS FUEL

max rpm 22,300

POWER : 1202. HP
HEAT RATE : 10.9229 KBTU/HP-HR
EXH. FLOW : 831.9651 LB/MIN
PCD : 75.69 P.S.I.G.
EXH. TEMP. : 837. DEG. F

NOX	(+/-)	CO	(+/-)	UHC	(+/-)	
5.17	20%	3.09	200%	0.80	400%	g/(kg -FUEL)
62.58	20%	61.53	200%	27.79	400%	PPMv at 15% O2 DRY BASIS
3.29	20%	1.97	200%	0.51	400%	LBm/Hr
14.43	20%	8.64	200%	2.23	400%	TON/YR
0.46	20%	0.28	200%	0.07	400%	micro-gram/Joule SHAFT POWER
1.24	20%	0.74	200%	0.19	400%	g/(BHP-Hr)
129.92	20%	77.76	200%	20.12	400%	mg/Nm3 at 15% O2, DRY BASIS
0.25	20%	0.15	200%	0.04	400%	LBm/(MMBTU -FUEL LHV)
107.80	20%	64.52	200%	16.69	400%	g/(GJ -FUEL LHV)
52.01	20%	51.13	200%	23.10	400%	PPMv at 16% O2 DRY
0.23	20%	0.14	200%	0.04	400%	LBm/(MMBTU -FUEL HHV)

ENGINE MODEL : SATURN T-1200
ENGINE TYPE : CS/MD
ENGINE RATING: HI-AMBIENT
FUEL CLASS : GAS FUEL

max Rpm 22,300

POWER : 1202. HP
HEAT RATE : 10.9229 KBTU/HP-HR
EXH. FLOW : 831.9651 LB/MIN
PCD : 75.69 P.S.I.G.
EXH. TEMP. : 837. DEG. F

NOX	(+/-)	CO	(+/-)	UHC	(+/-)	
5.17	20%	3.09	200%	0.80	400%	g/(kg -FUEL)
62.58	20%	61.53	200%	27.79	400%	PPMv at 15% O2 DRY BASIS
3.29	20%	1.97	200%	0.51	400%	LBm/Hr
14.43	20%	8.64	200%	2.23	400%	TON/YR
0.46	20%	0.28	200%	0.07	400%	micro-gram/Joule SHAFT POWER
1.24	20%	0.74	200%	0.19	400%	g/(BHP-Hr) SHAFT POWER
129.92	20%	77.76	200%	20.12	400%	mg/Nm3 at 15% O2, DRY BASIS
0.25	20%	0.15	200%	0.04	400%	LBm/(MMBTU -FUEL LHV)
107.80	20%	64.52	200%	16.69	400%	g/(GJ -FUEL LHV)
52.01	20%	51.13	200%	23.10	400%	PPMv at 16% O2 DRY
0.23	20%	0.14	200%	0.04	400%	LBm/(MMBTU -FUEL HHV)

APPENDIX D

SUPPORTING CALCULATIONS

EMISSION CALCULATIONS
COMPRESSOR ENGINE

MAXIMUM HEAT INPUT:

COMPRESSOR ENGINE:

EPN No. 3003:

Engine Rating	= 1,202 bhp
Brake Specific Fuel Consumption	= 10,923 Btu/bhp-hr
Maximum Heat Input = MMBtu/Hr	= (Btu/bhp-hr * hp)/10^6
	= (10,923 * 1,202)/10^6
	= 13.13
Gas Consumption = MMSCF/Hr	= (13.13 MMBtu/Hr)/1040 Btu/CF
	= 0.013 MMCF/Hr

POLLUTANT EMISSION FACTORS:

COMPRESSOR ENGINE:

EPN No. 3003:

NO_x:	1.49 grams/bhp-hr	Manufacturer's Data
CO:	2.22 grams/bhp-hr	Manufacturer's Data
UHC:	0.95 grams/bhp-hr	Manufacturer's Data
NMHC:	0.095 grams/bhp-hr	(10% of UHC)
SO_2:	10 grains/100 CF	Contract Limit on Sulfur Content

= 10 grains/100 CF * 1 lb/7,000 grams * Btu/bhp-hr * bhp * 1 CF/1,040 Btu * 64 lb SO_2/32 lb

= 10 grains/100 CF * 1 lb/7,000 grains * 10,923 BTU/bhp-hr * 1,202 bhp * 1 CF/1,040 Btu * 64 lb SO_2/32 lb

= 0.36 lb SO_2/hr

= lb SO_2/hr * 453.6 g/1 lb/bhp

= 0.36 lb SO_2/hr * 453.6 g/1 lb/1,202 bhp

= 0.14 grams/bhp-hr

PM:	5 lbs/10^6 CF	Table 1.4-1, AP-42
lb PM/hr	= 5 lb PM/10^6 CF * CF/hr	
	= 5 lb PM/10^6 CF * 0.013 CF/hr	
	= 0.064 lb PM/hr	
	= lb PM/hr * 453.6 g/1 lb/bhp	
	= 0.064 lb PM/hr * 453.6 g/1 lb/1,202 bhp	
	= 0.024 grams/bhp-hr	

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 ENGINE

EPN No. 3003:

lb NO_x/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (1.49 grams/bhp-hr) * (0.002205 lb/gram) * (1202 bhp)

= 3.95 lb/hour

tons NO_x/yr = (lb NO_x/hr) * (8760 hr/yr) / (2000 lbs/ton)

= (3.95 lb/hr) * (8760 hr/yr) / (2000 lbs/ton)

= 17.30 tons/year

Station Total:

lb NO_x/hr = 3.95 lb NO_x/hr

tons NO_x/yr = 17.30 TPY NO_x

CO EMISSIONS

COMPRESSOR ENGINE

EPN No. 3003:

lb CO/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (2.22 grams/bhp-hr) * (0.002205 lb/gram) * (1,202 bhp)

= 5.88 lb/hour

tons CO/yr = (lb CO/hr) * (8760 hr/yr) / (2000 lb/ton)

= (5.88 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 25.75 tons/year

Station Total:

lb CO/hr = 5.88 lb CO/hr

tons CO/yr = 25.75 TPY CO

NMHC EMISSIONS

COMPRESSOR ENGINE

EPN No. 3003:

lb NMHC/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.095 grams/bhp-hr) * (0.002205 lb/gram) * (1,202 bhp)

= 0.25 lb/hour

tons NMHC/yr = (lb NMHC/hr) * (8760 hr/yr) / (2000 lb/ton)

= (0.25 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 1.10 tons/year

Station Total:

lb NMHC/hr = 0.25 lb NMHC/hr

tons NMHC/yr = 1.10 TPY NMHC

SO_2 EMISSIONS

COMPRESSOR ENGINE

EPN No. 3003:

lb SO_2/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.14 grams/bhp-hr) * (0.002205 lb/gram) * (1,202 bhp)

= 0.37 lb/hour

tons SO_2/yr = (lb SO_2/hr) * (8760 hr/yr) / (2000 lb/ton)

= (0.37 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 1.62 tons/year

Station Total:

lb SO_2/hr = 0.37 lb SO_2/hr

tons SO_2/yr = 1.62 TPY SO_2

PM EMISSIONS

COMPRESSOR ENGINE

EPN No. 3003:

lb PM/hr = (grams/bhp-hr) * (0.002205 lb/gram) * (bhp)

= (0.024 grams/bhp-hr) * (0.002205 lb/gram) * (1,202 bhp)

= 0.064 lb/hour

tons PM/yr = (lb PM/hr) * (8760 hr/yr) / (2000 lb/ton)

= (0.064 lb/hr) * (8760 hr/yr) / (2000 lb/ton)

= 0.28 tons/year

Station Total:

lb PM/hr = 0.064 lb PM/hr

tons PM/yr = 0.28 TPY PM

FIXED ROOF TANK CALCULATIONS
AP-42 - Fourth Edition - 1990

Symbol	Description	Units	Value	References
	Tank Identification	C.S. 30 - Tank 1		
	Contents	Used Lube Oil		
Mv	Vapor Molecular Weight	(lb/lb mol)	190	(See AP-42, Table 4.3-2)
	Liquid Temp.	degrees F		
	Max			
	Avg			
	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 EPA, 1990)
	@ Avg Temp		0.0019	
Wl	Density	(lb/gal)		(See EPA, 1990)
	Tank Height	(feet)	10.75	
D	Tank Diameter	(feet)	2	
V	Tank Volume	(gallons)	250	
	Tank Throughput	(gal/yr)	300	
Kc	Product Factor		1	
FRm	Maximum Fill Rate	(gal/hr)	0	
Pa	Avg. Atm. Pressure	(psia)	14.7	
T	Avg. Diurnal Delta T	degrees F	20	
H	Avg. Vapor Space Ht.	(feet)	5.375	(1/2 Tank Hgt. if Unknown)
Fp	Paint Factor		1.4	(See AP-42, Table 4.3-1)
C	Adj. for Small Tanks		0.1	(See AP-42, Fig. 4.3-4)
N	Turnovers	#/yr	1.20	(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)	0.05	0.05
Working Loss (Lw)	(lb/yr)	0.00	0.00
Max. Short-term Loss	(lb/hr)	0.00	0.00
Annual Loss	(tons/year)	0.00	0.00

FIXED ROOF TANK CALCULATIONS
AP-42 - Fourth Edition - 1990

Symbol	Description	Units	Value	References
	Tank Identification	C.S. 30 - Tank 2		
	Contents	Used Lube Oil		
Mv	Vapor Molecular Weight	(lb/lb mol)	190	(See AP-42, Table 4.3-2)
	Liquid Temp.	degrees F		
	Max			
	Avg			
	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 EPA, 1990)
	@ Avg Temp		0.0019	
Wl	Density	(lb/gal)		(See EPA, 1990)
	Tank Height	(feet)	10.75	
D	Tank Diameter	(feet)	2	
V	Tank Volume	(gallons)	250	
	Tank Throughput	(gal/yr)	300	
Kc	Product Factor		1	
FRm	Maximum Fill Rate	(gal/hr)	0	
Pa	Avg. Atm. Pressure	(psia)	14.7	
T	Avg. Diurnal Delta T	degrees F	20	
H	Avg. Vapor Space Ht.	(feet)	5.375	(1/2 Tank Hgt. if Unknown)
Fp	Paint Factor		1.4	(See AP-42, Table 4.3-1)
C	Adj. for Small Tanks		0.1	(See AP-42, Fig. 4.3-4)
N	Turnovers	#/yr	1.20	(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)	0.05	0.05
Working Loss (Lw)	(lb/yr)	0.00	0.00
Max. Short-term Loss	(lb/hr)	0.00	0.00
Annual Loss	(tons/year)	0.00	0.00

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.

Rules and Regulations	Applicability	Name	Comments
§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 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 emissions permitted, applicable limiting standards (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 $\leq$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.

Rules and Regulations	Applicability	Name	Comments
§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 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 $\leq$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.

Rules and Regulations	Applicability	Name	Comments
§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).
§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.
§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.

Rules and Regulations	Applicability	Name	Comments
§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 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.

Rules and Regulations	Applicability	Name	Comments
§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.
§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 production of air pollutants from the compressor station.
• Part IV		Area Designation and Attainment Dates	Heading. No specific regulatory requirements.

Rules and Regulations	Applicability	Name	Comments
§17-2.400	Yes	Procedures for Designation and Redesignation of Areas	All areas of the state are to be designated as non-attain ment, 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 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	No	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 apply since this compressor station is located in an attainment/unclassifiable area for all criteria pollutants.

Rules and Regulations	Applicability	Name	Comments
§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 Non-attainment	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 area unclassifiable for NO_x, CO, and O_3. 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.

Rules and Regulations	Applicability	Name	Comments
§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	Yes	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 to this section are established. 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. The action at this compressor station for which a permit is being requested does not constitute a major modification. Therefore, FGTC is not subject to PSD review. Source exemptions to New Source Review (NSR) are presented. Applicability of NSR to new or modified major and minor sources is established. The

Rules and Regulations	Applicability	Name	Comments
			specifications of new emissions increase, significant net emissions increase (Table 500-2), contemporaneous emissions changes, and creditable emissions changes are established. Should federal action result in the relaxation of emissions restrictions, then state NSR applies as if the facility was to be newly constructed. Limited exemptions and special provisions address: relocatable facilities, temporary emissions, modifications under 50 TPY, general ambient monitoring exclusions based on De Minimis ambient impacts (Table 500-3), and temporary and permanent exclusions from increment consumption. General provisions established include: facilities or modifications affecting Class I Areas, baseline related provisions, and ambient monitoring quality assurance requirements. Preconstruction review requirements include: primary and secondary impact analyses, technology review, BACT, and air quality monitoring analyses. Pre- and post construction monitoring may be required. Information which FGTC is required to submit in the PSD application is specified. The general requirements required for construction and operating permits are specified. This rule became effective 11/1/81.
§17-2.510	No	New Source Review for Non-attainment Areas	This compressor station is not located in a non-attainment area or area of influence on any non-attainment area for any criteria pollutant. Therefore, this section does not apply.

Rules and Regulations	Applicability	Name	Comments
§17-2.520	Yes	Sources Not Subject to Prevention of Significant Deterioration or Non-attainment Requirements	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 presented in §17-2.500. Therefore, this section applies 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.

Rules and Regulations	Applicability	Name	Comments
§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 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)	DER will make a BACT determination following a receipt of a complete construction permit application. In its determination, DER will consider BACT determinations made by USEPA; NSPS; NESHAPS; scientific, technical, engineering, and other available information; BACT and emissions standards in other states; and the social and economic impact of the technology. This rule also provides for determining BACT for phased construction projects, and use of innovative control technology. FGTC must submit a complete construction permit application so that DER can proceed.

Rules and Regulations	Applicability	Name	Comments
§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 not located in either one of these types of areas, this LAER is not applicable to the compressor station.
§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 not located in either a non-attainment area of area of influence on a non-attainment area, this section does not apply.
§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.

Rules and Regulations	Applicability	Name	Comments
• 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.
• 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).

Rules and Regulations	Applicability	Name	Comments
• 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.
• 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.

Rules and Regulations	Applicability	Name	Comments
• 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.
• 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.

Rules and Regulations	Applicability	Name	Comments
• 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.
• 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.

Rules and Regulations	Applicability	Name	Comments
• 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	No	Standards of Performance for Stationary Gas Turbines	There are no stationary gas turbines at this facility.
• 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.

Rules and Regulations	Applicability	Name	Comments
• 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.
• 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.

Rules and Regulations	Applicability	Name	Comments
• 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.
• Subpart AAA	No	Standards of Performance for New Residential Wood Heaters	This facility is not a residential wood heater.
• Subpart BBB	No	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.

Rules and Regulations	Applicability	Name	Comments
• 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.
• 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.

Rules and Regulations	Applicability	Name	Comments
• 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 Is not a petroleum wastewater system.
• Subpart SSS	No	Standards of Performance for Magnetic Tape Manufacturing Industry	This facility is not involved in the manufacture or 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.

Rules and Regulations	Applicability	Name	Comments
• 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.
• 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.

Rules and Regulations	Applicability	Name	Comments
• 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.
• 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.

Rules and Regulations	Applicability	Name	Comments
• 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 is not a licensed uranium mill tailing.
• 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.
• 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.

Rules and Regulations	Applicability	Name	Comments
§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	No	Local Air Pollution Control Programs	This part establishes local air pollution control programs. in specified counties. Because this facility is not located in one of the counties with approved programs, it is not subject to a local air pollution control program.
• 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.
§17-4.020	Yes	Definitions	Definitions of terms used in Part I to which FGTC is subject are presented.

Rules and Regulations	Applicability	Name	Comments
§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 upon completion of construction in order to be granted an operation permit.

Rules and Regulations	Applicability	Name	Comments
§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.

Rules and Regulations	Applicability	Name	Comments
• Part II	No	Specific Permits: Requirements	Heading. No specific regulatory requirements.
§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 regulatory 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.

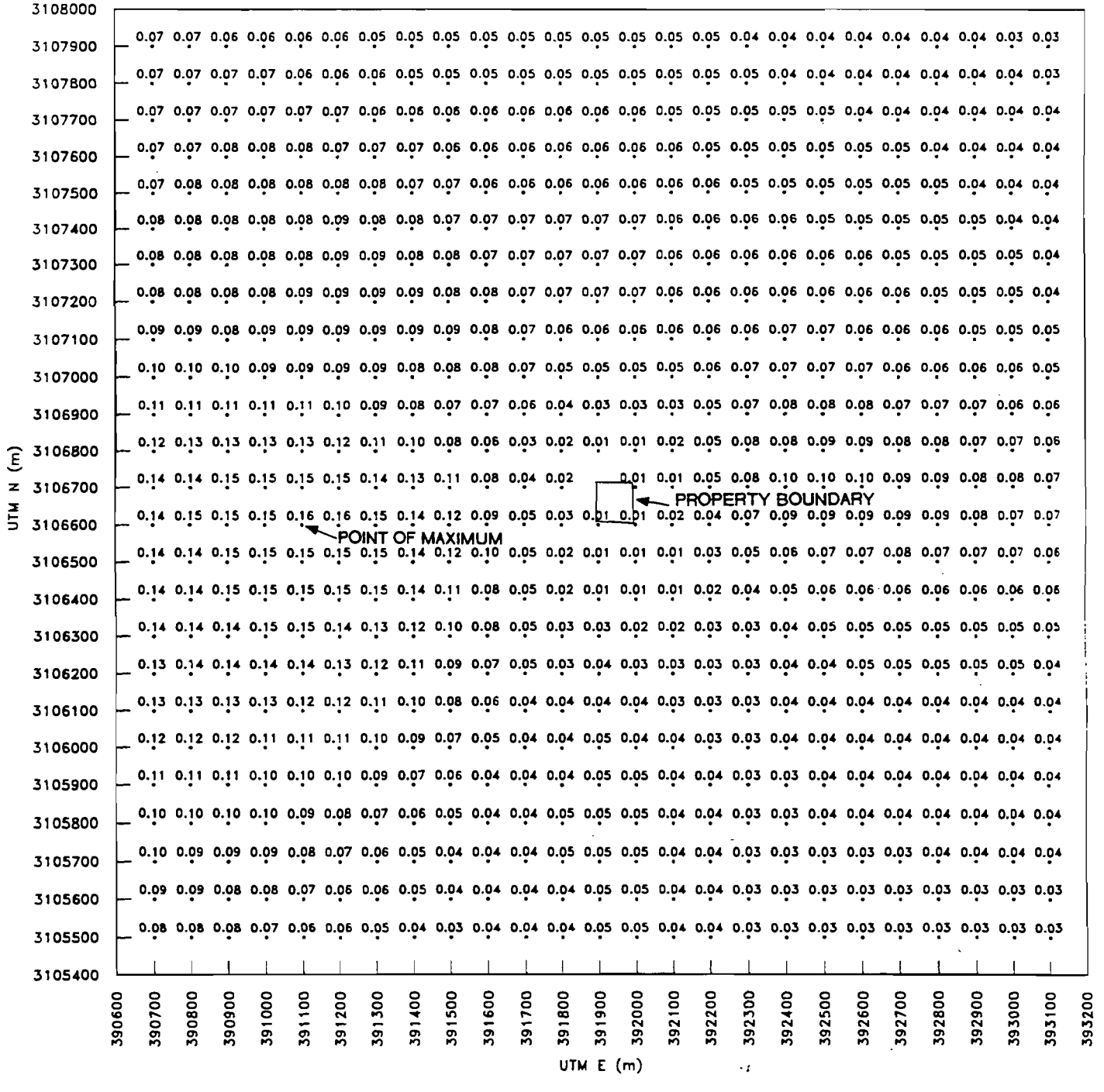
Rules and Regulations	Applicability	Name	Comments
• Chapter 17-242	No	Mobile Source - Motor Vehicle Emission Standards and Test Procedures	This facility is not involved with compliance and testing of mobile sources/motor vehicles.
• Chapter 17-243	No	Tampering With Motor Vehicle Air Pollution Control Equipment	This facility is not involved with checking motor vehicle pollution control devices for tampering.

APPENDIX F

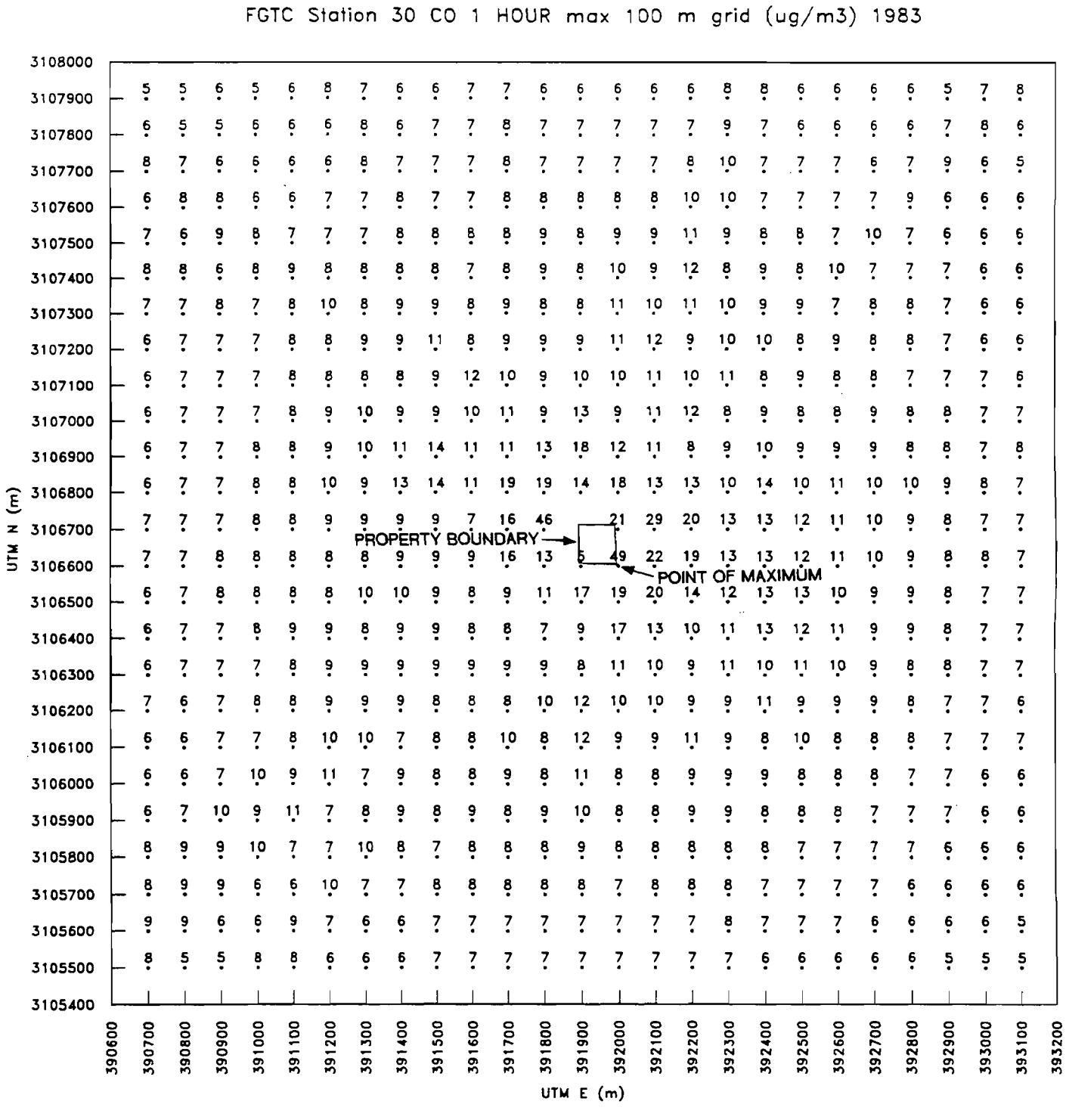
AREA CONCENTRATION MAPS FROM ISC MODELING
GEP STRUCTURE DOWNWASH OUTPUT TABLE
HARDCOPY OUTPUT FROM ISC MODELING
FLOPPY DISK WITH MODELING AND GEP INPUT FILES

MAXIMUM ANNUAL NO_x CONCENTRATION ($\mu g/m^3$)
100 METER GRID SPACING

FGTC Station 30 NOx ANNUAL max 100 m grid (ug/m3) 1982

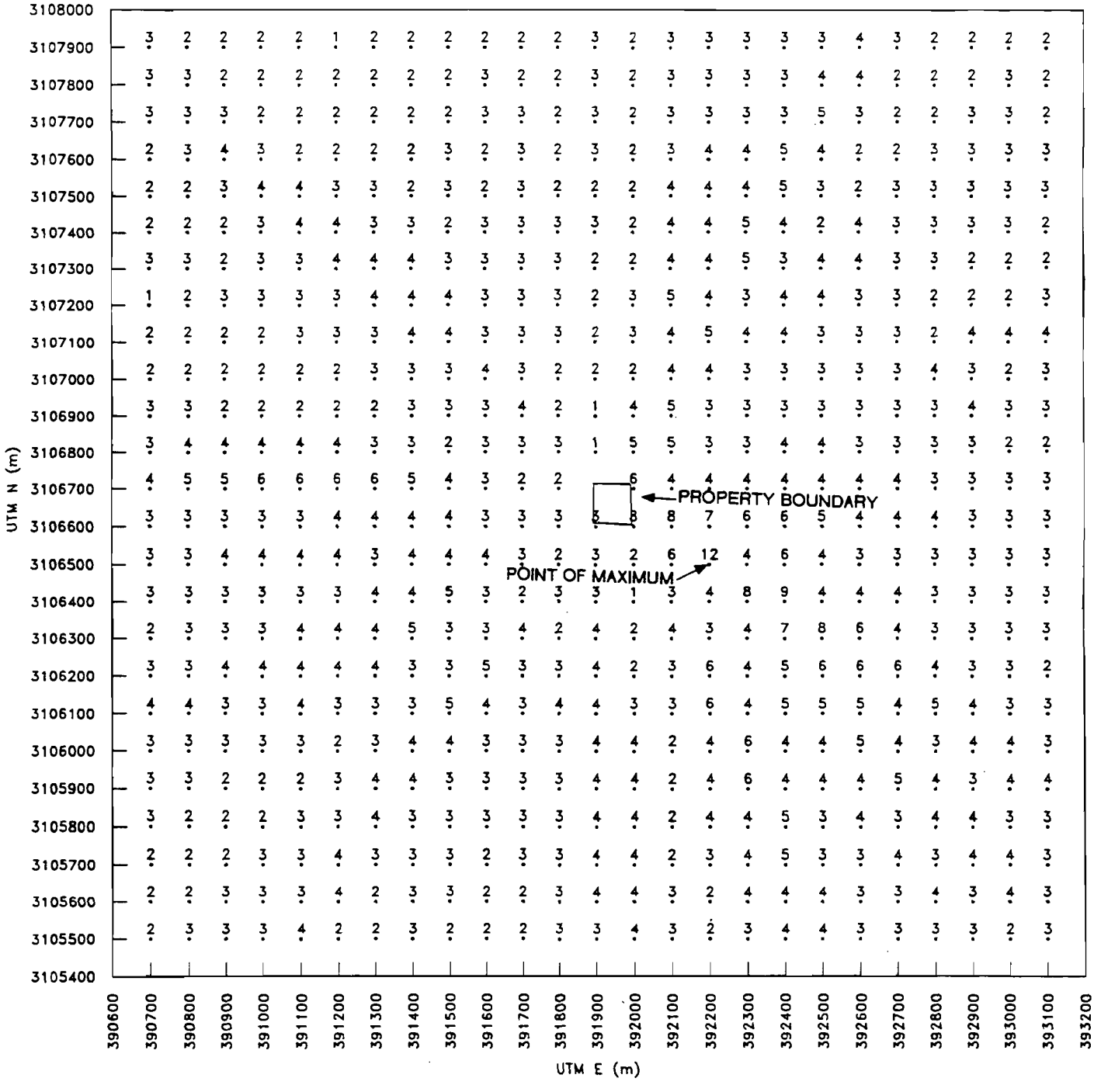


MAXIMUM 1-HOUR CO CONCENTRATION ($\mu g/m^3$)
100 METER GRID SPACING


FGTC Station 30 CO 1 HOUR max 100 m grid (ug/m3) 1983
UTM N (m)
3108000
3107900
3107800
3107700
3107600
3107500
3107400
3107300
3107200
3107100
3107000
3106900
3106800
3106700
3106600
3106500
3106400
3106300
3106200
3106100
3106000
3105900
3105800
3105700
3105600
3105500
3105400
PROPERTY BOUNDARY
POINT OF MAXIMUM
390600
390700
390800
390900
391000
391100
391200
391300
391400
391500
391600
391700
391800
391900
392000
392100
392200
392300
392400
392500
392600
392700
392800
392900
393000
393100
393200
UTM E (m)

MAXIMUM 8-HOUR CO CONCENTRATION ($\mu g/m^3$)
100 METER GRID SPACING

FGTC Station 30 CO 8 HOUR max 100 m grid (ug/m3) 1984



GEP STRUCTURE DOWNWASH PROGRAM OUTPUT TABLE

GEP Table

ENSR

Input Data
File Name: ST30S.TAB
Date: 2-27-1993

Model: ISCST

Wake Area Section Option: Maximum of all directions within sector.

Wake Area Shape Option: ISC Rectangle 1/2L*2L*5L.

Combine Structures: Combine buildings within one "L"
crosswind and 1.00 "L" upwind
-downwind of each other.

Number of Buildings: 3

Number of Tanks: 0

Number of Stacks: 1

Plant Rotation Angle: .000½

Input Data (cont.)

Building No. 1
Name: UTIL
Height: 16.00 (FT)

Corner	East (FT)	North (FT)
1	101.00	80.00
2	103.00	120.00
3	121.00	119.00
4	120.00	79.00
5	101.00	80.00

Input Data (cont.)

Building No. 2
Name: OCB
Height: 16.00 (FT)

Corner	East (FT)	North (FT)
1	139.00	18.00
2	140.00	30.00
3	180.00	28.00
4	179.00	16.00
5	139.00	18.00

Input Data (cont.)

Building No. 3
Name: COMP BLDG1
Height: 15.00 (FT)

Corner	East (FT)	North (FT)
1	91.00	160.00
2	93.00	200.00
3	193.00	197.00
4	191.00	157.00
5	91.00	160.00

Input Data (cont.)

Stack Parameters

Stack No.	Height (FT)	Location East (FT)	Location North (FT)
3	20.00	164.00	186.00

GEP Table

ENSR

STACK ID 3

Sector No.	Critical Flow Vector (deg)	GEP Stack Height (FT)	Controlling Structures Name-1	Name-2	Height (FT)	Projected Width (FT)
1	15.00	37.500	COMP BLDG1		15.000	105.791
2	25.00	40.000	UTIL		16.000	32.735
3	35.00	40.000	UTIL		16.000	37.442
4	45.00	40.000	UTIL		16.000	41.012
5	47.00	40.000	UTIL		16.000	41.580
6	65.00	37.500	UTIL	COMP BLDG1	15.000	121.074
7	75.00	37.500	UTIL	COMP BLDG1	15.000	123.865
8	76.00	37.500	UTIL	COMP BLDG1	15.000	123.938
9	85.00	37.500	COMP BLDG1		15.000	51.377
10	105.00	37.500	COMP BLDG1		15.000	62.139
11	115.00	37.500	COMP BLDG1		15.000	76.641
12	125.00	37.500	COMP BLDG1		15.000	88.814
13	128.00	37.500	UTIL	COMP BLDG1	15.000	148.838
14	135.00	37.500	UTIL	COMP BLDG1	15.000	147.785
15	145.00	37.500	UTIL	COMP BLDG1	15.000	142.471
16	155.00	37.500	UTIL	COMP BLDG1	15.000	132.827
17	165.00	37.500	UTIL	COMP BLDG1	15.000	119.147
18	175.00	37.500	COMP BLDG1		15.000	104.837
19	195.00	37.500	COMP BLDG1		15.000	105.791
20	204.00	37.500	COMP BLDG1		15.000	107.018
21	205.00	37.500	COMP BLDG1		15.000	106.991
22	215.00	37.500	COMP BLDG1		15.000	104.941
23	235.00	37.500	UTIL	COMP BLDG1	15.000	114.604
24	245.00	37.500	UTIL	COMP BLDG1	15.000	121.074
25	255.00	37.500	UTIL	COMP BLDG1	15.000	123.865
26	256.00	37.500	UTIL	COMP BLDG1	15.000	123.938
27	265.00	37.500	COMP BLDG1		15.000	51.378
28	285.00	37.500	COMP BLDG1		15.000	62.139
29	295.00	37.500	COMP BLDG1		15.000	76.641
30	305.00	37.500	COMP BLDG1		15.000	88.814
31	308.00	37.500	UTIL	COMP BLDG1	15.000	148.838
32	315.00	37.500	UTIL	COMP BLDG1	15.000	147.785
33	325.00	37.500	UTIL	COMP BLDG1	15.000	142.471
34	335.00	37.500	UTIL	COMP BLDG1	15.000	132.827
35	345.00	37.500	UTIL	COMP BLDG1	15.000	119.147
36	355.00	37.500	COMP BLDG1		15.000	104.837

ISC MODEL RESULTS
NO_x - ANNUAL
100 METER GRID
YEAR: 1982

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NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
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*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Default Wind Profile Exponents.
5. Default Vertical Potential Temperature Gradients.
6. "Upper Bound" Values For Supersquat Buildings.
7. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 STAR Average(s) for the Following Months: 0 0 0 0 0 0 0 0 0 0 0 0
Seasons/Quarters: 0 0 0 0
and Annual: 1

**Model Assumes 1 STAR Summaries In Data File for the Averaging Periods Identified Above

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Long Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Maximum Long Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of Long Term Values for Plotting (PLOTFILE Keyword)

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: st30n82.ann ; **Output Print File: st30n82.out
**Error Message File: st30n83a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.44000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.7,	0	2	4.9,	11.2,	0	3	4.9,	12.7,	0	4	4.6,	37.8,	0
5	4.6,	18.7,	0	6	4.6,	26.5,	0	7	4.6,	45.4,	0	8	4.6,	43.1,	0
9	4.6,	32.7,	0	10	4.6,	32.6,	0	11	4.6,	35.1,	0	12	4.6,	37.8,	0
13	4.6,	18.7,	0	14	4.6,	26.5,	0	15	4.6,	45.4,	0	16	4.6,	43.1,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE SPEED FOR EACH WIND SPEED CATEGORY ***
(METERS/SEC)

1.50, 2.50, 4.30, 6.80, 9.50, 12.50,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** AVERAGE AMBIENT AIR TEMPERATURE (KELVIN) ***

	STABILITY CATEGORY A	STABILITY CATEGORY B	STABILITY CATEGORY C	STABILITY CATEGORY D	STABILITY CATEGORY E	STABILITY CATEGORY F
ANNUAL	300.6000	300.6000	300.6000	295.4000	290.1000	290.1000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE MIXING LAYER HEIGHT (METERS) ***

ANNUAL

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY A	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000
STABILITY CATEGORY B	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY C	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY D	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY E	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000
STABILITY CATEGORY F	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA82.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1982 YEAR: 1982

ANNUAL: STABILITY CATEGORY A

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00000900	0.00011500	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00001700	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.00000900	0.00011500	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.00014700	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.00004900	0.00068500	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00002500	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00004100	0.00057100	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00026100	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00002500	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00014700	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00030200	0.00080000	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00003300	0.00045700	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00002500	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00026100	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00002500	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY B

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00008100	0.00148500	0.00114200	0.00000000	0.00000000	0.00000000
22.500	0.00041100	0.00091400	0.00045700	0.00000000	0.00000000	0.00000000
45.000	0.00071900	0.00216900	0.00239800	0.00000000	0.00000000	0.00000000
67.500	0.00073200	0.00239800	0.00319700	0.00000000	0.00000000	0.00000000
90.000	0.00066100	0.00331100	0.00388200	0.00000000	0.00000000	0.00000000
112.500	0.00051600	0.00285400	0.00194100	0.00000000	0.00000000	0.00000000
135.000	0.00054000	0.00331100	0.00308300	0.00000000	0.00000000	0.00000000
157.500	0.00011800	0.00216900	0.00365300	0.00000000	0.00000000	0.00000000
180.000	0.00057100	0.00388200	0.00479500	0.00000000	0.00000000	0.00000000
202.500	0.00028100	0.00296900	0.00319700	0.00000000	0.00000000	0.00000000
225.000	0.00042600	0.00342500	0.00468100	0.00000000	0.00000000	0.00000000
247.500	0.00019800	0.00365300	0.00810600	0.00000000	0.00000000	0.00000000
270.000	0.00043200	0.00353900	0.00616500	0.00000000	0.00000000	0.00000000
292.500	0.00019500	0.00137000	0.00194100	0.00000000	0.00000000	0.00000000
315.000	0.00015800	0.00068500	0.00057100	0.00000000	0.00000000	0.00000000
337.500	0.00013300	0.00022900	0.00034300	0.00000000	0.00000000	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA82.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1982 YEAR: 1982

ANNUAL: STABILITY CATEGORY C

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00004000	0.00080000	0.00228400	0.00045700	0.00000000	0.00000000
22.500	0.00040500	0.00091400	0.00353900	0.00057100	0.00000000	0.00000000
45.000	0.00010200	0.00205500	0.00742100	0.00091400	0.00000000	0.00000000
67.500	0.00044300	0.00411000	0.01335700	0.00228400	0.00000000	0.00000000
90.000	0.00038000	0.00525200	0.01438400	0.00251200	0.00000000	0.00000000
112.500	0.00026700	0.00296900	0.00776300	0.00057100	0.00000000	0.00000000
135.000	0.00037000	0.00262600	0.00810600	0.00114200	0.00000000	0.00000000
157.500	0.00022800	0.00216900	0.00605100	0.00114200	0.00000000	0.00000000
180.000	0.00017100	0.00102800	0.00570800	0.00102800	0.00000000	0.00000000
202.500	0.00014900	0.00057100	0.00479500	0.00080000	0.00000000	0.00000000
225.000	0.00009700	0.00194100	0.00616500	0.00068500	0.00000000	0.00000000
247.500	0.00011900	0.00239800	0.00719200	0.00034300	0.00000000	0.00000000
270.000	0.00019400	0.00148500	0.01301400	0.00251200	0.00000000	0.00000000
292.500	0.00004600	0.00091400	0.00559400	0.00194100	0.00000000	0.00000000
315.000	0.00029700	0.00114200	0.00159900	0.00091400	0.00000000	0.00000000
337.500	0.00001200	0.00022900	0.00125600	0.00011500	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY D

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00092300	0.00148500	0.00810600	0.00787700	0.00011500	0.00000000
22.500	0.00006200	0.00114200	0.00422400	0.00616500	0.00011500	0.00000000
45.000	0.00050600	0.00490900	0.01678100	0.01130200	0.00000000	0.00000000
67.500	0.00032700	0.00605100	0.02637000	0.01506900	0.00022900	0.00000000
90.000	0.00057700	0.00844800	0.02580000	0.01198700	0.00034300	0.00000000
112.500	0.00031800	0.00365300	0.01552600	0.00445300	0.00011500	0.00000000
135.000	0.00040400	0.00525200	0.01347100	0.00685000	0.00022900	0.00000000
157.500	0.00025600	0.00251200	0.00947500	0.00445300	0.00000000	0.00000000
180.000	0.00025600	0.00251200	0.00913300	0.00296900	0.00011500	0.00000000
202.500	0.00036400	0.00228400	0.00650700	0.00582200	0.00057100	0.00000000
225.000	0.00009300	0.00171300	0.00548000	0.00353900	0.00011500	0.00011500
247.500	0.00009300	0.00171300	0.00399600	0.00182700	0.00000000	0.00011500
270.000	0.00044200	0.00148500	0.00787700	0.00639300	0.00000000	0.00000000
292.500	0.00004400	0.00080000	0.00490900	0.00570800	0.00022900	0.00022900
315.000	0.00009900	0.00182700	0.00593700	0.00536600	0.00011500	0.00011500
337.500	0.00003700	0.00068500	0.00639300	0.00605100	0.00022900	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA82.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1982 YEAR: 1982

ANNUAL: STABILITY CATEGORY E

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00000000	0.00376800	0.00616500	0.00000000	0.00000000	0.00000000
22.500	0.00000000	0.00148500	0.00308300	0.00000000	0.00000000	0.00000000
45.000	0.00000000	0.00981800	0.01084500	0.00000000	0.00000000	0.00000000
67.500	0.00000000	0.01404200	0.01335700	0.00000000	0.00000000	0.00000000
90.000	0.00000000	0.01575400	0.01586800	0.00000000	0.00000000	0.00000000
112.500	0.00000000	0.01095900	0.01130200	0.00000000	0.00000000	0.00000000
135.000	0.00000000	0.01027400	0.00696400	0.00000000	0.00000000	0.00000000
157.500	0.00000000	0.00582200	0.00239800	0.00000000	0.00000000	0.00000000
180.000	0.00000000	0.00593700	0.00114200	0.00000000	0.00000000	0.00000000
202.500	0.00000000	0.00205500	0.00194100	0.00000000	0.00000000	0.00000000
225.000	0.00000000	0.00274000	0.00125600	0.00000000	0.00000000	0.00000000
247.500	0.00000000	0.00137000	0.00159900	0.00000000	0.00000000	0.00000000
270.000	0.00000000	0.00125600	0.00422400	0.00000000	0.00000000	0.00000000
292.500	0.00000000	0.00251200	0.00490900	0.00000000	0.00000000	0.00000000
315.000	0.00000000	0.00342500	0.00468100	0.00000000	0.00000000	0.00000000
337.500	0.00000000	0.00159900	0.00376800	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY F

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00413200	0.00844800	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00246300	0.00559400	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.00767600	0.01621100	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.01132900	0.02443000	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.01491100	0.02819700	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00969800	0.01758000	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00578400	0.01004600	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00195200	0.00285400	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00201200	0.00251200	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00117500	0.00137000	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00187000	0.00251200	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00158200	0.00308300	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00232200	0.00262600	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00246800	0.00502300	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00395200	0.00947500	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00305000	0.00627900	0.00000000	0.00000000	0.00000000	0.00000000

SUM OF FREQUENCIES, FTOTAL = 1.00015

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00	391200.00	391300.00	391400.00	391500.00
3107900.00	0.066535	0.065158	0.063454	0.061428	0.059072	0.056395	0.053430	0.050244	0.049616
3107800.00	0.068354	0.069670	0.068128	0.066193	0.063874	0.061164	0.058090	0.054718	0.052375
3107700.00	0.070214	0.071558	0.073161	0.071409	0.069178	0.066478	0.063317	0.059755	0.055928
3107600.00	0.072104	0.073471	0.075094	0.077060	0.075027	0.072393	0.069179	0.065430	0.061264
3107500.00	0.074014	0.075395	0.077023	0.078985	0.081403	0.078961	0.075746	0.071678	0.066775
3107400.00	0.075932	0.077317	0.078929	0.080850	0.083202	0.086160	0.082818	0.077970	0.072469
3107300.00	0.077844	0.079221	0.080792	0.082629	0.084836	0.087245	0.089973	0.084800	0.078504
3107200.00	0.079737	0.081095	0.082603	0.084307	0.086105	0.087370	0.089197	0.092030	0.084737
3107100.00	0.087756	0.085861	0.084368	0.085875	0.086769	0.087195	0.087761	0.088759	0.090798
3107000.00	0.099187	0.098300	0.096626	0.093741	0.088381	0.086988	0.086016	0.084477	0.082802
3106900.00	0.111620	0.112058	0.111859	0.109948	0.105580	0.098966	0.089436	0.080519	0.074320
3106800.00	0.124797	0.126831	0.128499	0.128323	0.125901	0.121116	0.112670	0.099147	0.079417
3106700.00	0.138381	0.142188	0.145973	0.148266	0.148551	0.146813	0.141487	0.130498	0.110970
3106600.00	0.142855	0.147301	0.151845	0.154944	0.156186	0.155512	0.151280	0.141246	0.122175
3106500.00	0.140246	0.144479	0.148820	0.151716	0.152845	0.152193	0.148379	0.139615	0.123771
3106400.00	0.137815	0.141939	0.146205	0.149660	0.151311	0.151726	0.150146	0.137143	0.113994
3106300.00	0.135573	0.139672	0.143994	0.148393	0.150204	0.144266	0.134713	0.120551	0.101903
3106200.00	0.133516	0.137654	0.139593	0.138756	0.135449	0.129112	0.120074	0.108215	0.093668
3106100.00	0.128377	0.128357	0.127593	0.125830	0.122625	0.116395	0.108346	0.098278	0.081218
3106000.00	0.118968	0.118224	0.116754	0.114370	0.110880	0.105816	0.098442	0.085349	0.069839
3105900.00	0.110314	0.109036	0.107087	0.104345	0.100715	0.095813	0.086214	0.073839	0.059779
3105800.00	0.102434	0.100786	0.098544	0.095643	0.091740	0.084072	0.074768	0.063753	0.051011
3105700.00	0.095311	0.093428	0.091039	0.087837	0.081434	0.073761	0.064771	0.054524	0.043249
3105600.00	0.088906	0.086897	0.084213	0.078752	0.072286	0.064761	0.056185	0.046661	0.036428
3105500.00	0.083168	0.080882	0.076152	0.070608	0.064204	0.056925	0.048814	0.039990	0.034719

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391600.00	391700.00	391800.00	391900.00	392000.00	392100.00	392200.00	392300.00	392400.00
3107900.00	0.050014	0.050295	0.050460	0.050516	0.049578	0.047735	0.045743	0.043655	0.041523
3107800.00	0.052898	0.053300	0.053581	0.053754	0.052739	0.050649	0.048403	0.046065	0.043697
3107700.00	0.056016	0.056563	0.056997	0.057323	0.056226	0.053836	0.051290	0.048671	0.046408
3107600.00	0.059305	0.059769	0.060244	0.060820	0.059642	0.056898	0.054153	0.051427	0.049672
3107500.00	0.062147	0.062612	0.063230	0.064118	0.062849	0.059699	0.056711	0.054006	0.052959
3107400.00	0.066852	0.065163	0.065846	0.067125	0.065729	0.062094	0.058961	0.057114	0.056199
3107300.00	0.071784	0.067041	0.067478	0.069149	0.067560	0.063420	0.060474	0.060000	0.059530
3107200.00	0.076287	0.068640	0.067088	0.068855	0.066953	0.062533	0.061274	0.062449	0.063017
3107100.00	0.079866	0.068929	0.063116	0.063868	0.061506	0.057759	0.060350	0.064476	0.066894
3107000.00	0.081992	0.065595	0.054338	0.051322	0.048783	0.048293	0.057350	0.066568	0.070656
3106900.00	0.066545	0.059293	0.036658	0.027842	0.026761	0.034674	0.054181	0.068312	0.076322
3106800.00	0.055172	0.033813	0.022530	0.012842	0.012862	0.019870	0.047732	0.075141	0.084302
3106700.00	0.080457	0.039376	0.016017	0.007522	0.007107	0.014052	0.045650	0.079576	0.095312
3106600.00	0.091617	0.051071	0.031236	0.006469	0.009416	0.024148	0.039946	0.067843	0.085390
3106500.00	0.095697	0.051857	0.021313	0.008420	0.005431	0.014411	0.028686	0.045888	0.061214
3106400.00	0.084315	0.054814	0.023305	0.014750	0.012238	0.014089	0.023592	0.037384	0.048709
3106300.00	0.080406	0.050801	0.025962	0.025435	0.022357	0.018278	0.025330	0.033601	0.042131
3106200.00	0.070812	0.046532	0.033864	0.035597	0.032568	0.026162	0.027974	0.033338	0.038349
3106100.00	0.061465	0.041502	0.039633	0.042812	0.040095	0.032962	0.030145	0.033465	0.036900
3106000.00	0.052760	0.040748	0.043116	0.046871	0.044565	0.037614	0.032460	0.033500	0.035805
3105900.00	0.044841	0.041772	0.044838	0.048699	0.046795	0.040409	0.035151	0.033245	0.034828
3105800.00	0.039316	0.042100	0.045387	0.049133	0.047576	0.041858	0.036861	0.032736	0.033852
3105700.00	0.038952	0.041954	0.045239	0.048785	0.047513	0.042433	0.037820	0.033717	0.032623
3105600.00	0.038205	0.041217	0.044406	0.047677	0.046644	0.042162	0.037913	0.034023	0.031257
3105500.00	0.037388	0.040232	0.043191	0.046187	0.045330	0.041381	0.037587	0.034048	0.030833

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392500.00	392600.00	392700.00	392800.00	392900.00	393000.00	393100.00
3107900.00	0.039896	0.038956	0.037916	0.036801	0.035640	0.034456	0.033272
3107800.00	0.042458	0.041353	0.040136	0.038840	0.037497	0.036138	0.034766
3107700.00	0.045274	0.043980	0.042558	0.041050	0.039498	0.037915	0.036152
3107600.00	0.048362	0.046854	0.045198	0.043448	0.041631	0.039598	0.037593
3107500.00	0.051690	0.049996	0.048080	0.046028	0.043693	0.041357	0.039080
3107400.00	0.054951	0.053347	0.051209	0.048569	0.045860	0.043181	0.040601
3107300.00	0.058489	0.056824	0.054270	0.051259	0.048123	0.045058	0.042144
3107200.00	0.062425	0.060239	0.057346	0.054075	0.050474	0.046977	0.043698
3107100.00	0.066313	0.064048	0.060730	0.056933	0.052917	0.048940	0.046686
3107000.00	0.070990	0.068538	0.064602	0.060642	0.058138	0.055356	0.052572
3106900.00	0.077355	0.075361	0.072770	0.069591	0.066112	0.062346	0.058600
3106800.00	0.087561	0.086592	0.083312	0.078952	0.074240	0.069357	0.064589
3106700.00	0.100301	0.098763	0.094127	0.088285	0.082212	0.076118	0.070335
3106600.00	0.092762	0.093242	0.090117	0.085360	0.080065	0.074542	0.069158
3106500.00	0.070812	0.074816	0.075091	0.073214	0.070241	0.066569	0.062650
3106400.00	0.055328	0.059041	0.061473	0.061812	0.060801	0.058711	0.056173
3106300.00	0.048016	0.051127	0.052106	0.051700	0.052013	0.051238	0.049920
3106200.00	0.043080	0.045995	0.047310	0.047433	0.046546	0.045041	0.044049
3106100.00	0.039834	0.042351	0.043716	0.044108	0.043434	0.042362	0.041056
3106000.00	0.037977	0.039819	0.041082	0.041293	0.040910	0.040149	0.039141
3105900.00	0.036447	0.037923	0.038819	0.039086	0.038890	0.038345	0.037555
3105800.00	0.035073	0.035980	0.036750	0.037368	0.037285	0.036885	0.036254
3105700.00	0.033427	0.034208	0.034914	0.035517	0.036009	0.035711	0.035193
3105600.00	0.031933	0.032619	0.033267	0.033848	0.034347	0.034760	0.034329
3105500.00	0.030569	0.031179	0.031777	0.032333	0.032829	0.033259	0.033617

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 10 ANNUAL AVERAGE CONCENTRATION VALUES FOR GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

RANK	CONC	AT	RECEPTOR (XR,YR) OF TYPE		RANK	CONC	AT	RECEPTOR (XR,YR) OF TYPE	
1.	0.156186	AT (	391100.00, 3106600.00)	GC	6.	0.151845	AT (	390900.00, 3106600.00)	GC
2.	0.155512	AT (	391200.00, 3106600.00)	GC	7.	0.151726	AT (	391200.00, 3106400.00)	GC
3.	0.154944	AT (	391000.00, 3106600.00)	GC	8.	0.151716	AT (	391000.00, 3106500.00)	GC
4.	0.152845	AT (	391100.00, 3106500.00)	GC	9.	0.151311	AT (	391100.00, 3106400.00)	GC
5.	0.152193	AT (	391200.00, 3106500.00)	GC	10.	0.151280	AT (	391300.00, 3106600.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 0 Informational Message(s)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCLT2 Finishes Successfully ***
****

ISC MODEL RESULTS
NO_x - ANNUAL
100 METER GRID
YEAR: 1983

```
NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
```

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Default Wind Profile Exponents.
5. Default Vertical Potential Temperature Gradients.
6. "Upper Bound" Values For Supersquat Buildings.
7. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 STAR Average(s) for the Following Months: 0 0 0 0 0 0 0 0 0 0 0 0
Seasons/Quarters: 0 0 0 0
and Annual: 1

**Model Assumes 1 STAR Summaries In Data File for the Averaging Periods Identified Above

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Long Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Maximum Long Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of Long Term Values for Plotting (PLOTFILE Keyword)

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: st30n83.ann ; **Output Print File: st30n83.out
**Error Message File: st30n83a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.44000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** DIRECTION SPECIFIC BUILDING DIMENSIONS ***

SOURCE ID: 3

IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK	IFV	BH	BW	WAK
1	4.6,	32.7,	0	2	4.9,	11.2,	0	3	4.9,	12.7,	0	4	4.6,	37.8,	0
5	4.6,	18.7,	0	6	4.6,	26.5,	0	7	4.6,	45.4,	0	8	4.6,	43.1,	0
9	4.6,	32.7,	0	10	4.6,	32.6,	0	11	4.6,	35.1,	0	12	4.6,	37.8,	0
13	4.6,	18.7,	0	14	4.6,	26.5,	0	15	4.6,	45.4,	0	16	4.6,	43.1,	0

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** GRIDDED RECEPTOR NETWORK SUMMARY ***

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

*** X-COORDINATES OF GRID ***
(METERS)

390700.0, 390800.0, 390900.0, 391000.0, 391100.0, 391200.0, 391300.0, 391400.0, 391500.0, 391600.0,
391700.0, 391800.0, 391900.0, 392000.0, 392100.0, 392200.0, 392300.0, 392400.0, 392500.0, 392600.0,
392700.0, 392800.0, 392900.0, 393000.0, 393100.0,

*** Y-COORDINATES OF GRID ***
(METERS)

3105500.0, 3105600.0, 3105700.0, 3105800.0, 3105900.0, 3106000.0, 3106100.0, 3106200.0, 3106300.0, 3106400.0,
3106500.0, 3106600.0, 3106700.0, 3106800.0, 3106900.0, 3107000.0, 3107100.0, 3107200.0, 3107300.0, 3107400.0,
3107500.0, 3107600.0, 3107700.0, 3107800.0, 3107900.0,

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE SPEED FOR EACH WIND SPEED CATEGORY ***
(METERS/SEC)

1.50, 2.50, 4.30, 6.80, 9.50, 12.50,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

*** AVERAGE AMBIENT AIR TEMPERATURE (KELVIN) ***

	STABILITY CATEGORY A	STABILITY CATEGORY B	STABILITY CATEGORY C	STABILITY CATEGORY D	STABILITY CATEGORY E	STABILITY CATEGORY F
ANNUAL	300.6000	300.6000	300.6000	295.4000	290.1000	290.1000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** AVERAGE MIXING LAYER HEIGHT (METERS) ***

ANNUAL

	WIND SPEED CATEGORY 1	WIND SPEED CATEGORY 2	WIND SPEED CATEGORY 3	WIND SPEED CATEGORY 4	WIND SPEED CATEGORY 5	WIND SPEED CATEGORY 6
STABILITY CATEGORY A	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000	1950.0000
STABILITY CATEGORY B	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY C	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY D	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000	1300.0000
STABILITY CATEGORY E	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000
STABILITY CATEGORY F	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000	10000.0000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA83.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1983 YEAR: 1983

ANNUAL: STABILITY CATEGORY A

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00005700	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00017100	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.00066500	0.00080000	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.00047400	0.00125600	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.00074000	0.00125600	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.00032200	0.00114200	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00005700	0.00034300	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00034200	0.00045700	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00011400	0.00068500	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00020800	0.00125600	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00022800	0.00057100	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00049300	0.00137000	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00020900	0.00045700	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00017100	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00017100	0.00022900	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00015200	0.00011500	0.00000000	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY B

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00070700	0.00251200	0.00148500	0.00000000	0.00000000	0.00000000
22.500	0.00057300	0.00239800	0.00182700	0.00000000	0.00000000	0.00000000
45.000	0.00124000	0.00296900	0.00251200	0.00000000	0.00000000	0.00000000
67.500	0.00106900	0.00388200	0.00171300	0.00000000	0.00000000	0.00000000
90.000	0.00202200	0.00490900	0.00308300	0.00000000	0.00000000	0.00000000
112.500	0.00039300	0.00319700	0.00285400	0.00000000	0.00000000	0.00000000
135.000	0.00055500	0.00365300	0.00308300	0.00000000	0.00000000	0.00000000
157.500	0.00054500	0.00205500	0.00171300	0.00000000	0.00000000	0.00000000
180.000	0.00103000	0.00194100	0.00262600	0.00000000	0.00000000	0.00000000
202.500	0.00044000	0.00228400	0.00228400	0.00000000	0.00000000	0.00000000
225.000	0.00086900	0.00296900	0.00342500	0.00000000	0.00000000	0.00000000
247.500	0.00081200	0.00376800	0.00490900	0.00000000	0.00000000	0.00000000
270.000	0.00053600	0.00342500	0.00536600	0.00000000	0.00000000	0.00000000
292.500	0.00034400	0.00114200	0.00102800	0.00000000	0.00000000	0.00000000
315.000	0.00017200	0.00057100	0.00034300	0.00000000	0.00000000	0.00000000
337.500	0.00068600	0.00080000	0.00068500	0.00000000	0.00000000	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA83.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1983 YEAR: 1983

ANNUAL: STABILITY CATEGORY C

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00046600	0.00137000	0.00525200	0.00114200	0.00000000	0.00000000
22.500	0.00010700	0.00148500	0.00502300	0.00057100	0.00000000	0.00000000
45.000	0.00070300	0.00296900	0.00696400	0.00034300	0.00000000	0.00000000
67.500	0.00045200	0.00627900	0.00787700	0.00000000	0.00000000	0.00000000
90.000	0.00066300	0.00582200	0.00822000	0.00137000	0.00000000	0.00000000
112.500	0.00057300	0.00285400	0.00593700	0.00068500	0.00000000	0.00000000
135.000	0.00041700	0.00239800	0.00639300	0.00080000	0.00000000	0.00000000
157.500	0.00007400	0.00102800	0.00513700	0.00114200	0.00000000	0.00000000
180.000	0.00029500	0.00239800	0.00388200	0.00091400	0.00000000	0.00000000
202.500	0.00030300	0.00080000	0.00331100	0.00091400	0.00000000	0.00000000
225.000	0.00074300	0.00182700	0.00399600	0.00011500	0.00000000	0.00000000
247.500	0.00024600	0.00171300	0.00445300	0.00080000	0.00000000	0.00000000
270.000	0.00032000	0.00274000	0.01141600	0.00285400	0.00011500	0.00011500
292.500	0.00022900	0.00148500	0.00456700	0.00102800	0.00011500	0.00000000
315.000	0.00007400	0.00102800	0.00285400	0.00091400	0.00000000	0.00000000
337.500	0.00016400	0.00057100	0.00296900	0.00137000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY D

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00021400	0.00365300	0.01004600	0.00901900	0.00034300	0.00000000
22.500	0.00118100	0.00365300	0.00696400	0.00411000	0.00000000	0.00000000
45.000	0.00099900	0.00673600	0.01564000	0.00342500	0.00000000	0.00000000
67.500	0.00130700	0.00787700	0.01392700	0.00650700	0.00022900	0.00000000
90.000	0.00074300	0.00856200	0.01746600	0.00981800	0.00034300	0.00022900
112.500	0.00075100	0.00456700	0.01084500	0.00490900	0.00011500	0.00022900
135.000	0.00034200	0.00376800	0.01038900	0.00753500	0.00022900	0.00000000
157.500	0.00059100	0.00182700	0.00822000	0.00502300	0.00000000	0.00000000
180.000	0.00092600	0.00342500	0.00810600	0.00627900	0.00034300	0.00011500
202.500	0.00028200	0.00274000	0.00776300	0.00536600	0.00011500	0.00000000
225.000	0.00041600	0.00296900	0.00513700	0.00342500	0.00011500	0.00000000
247.500	0.00040200	0.00274000	0.00456700	0.00319700	0.00000000	0.00011500
270.000	0.00022800	0.00182700	0.00833400	0.01084500	0.00205500	0.00034300
292.500	0.00011400	0.00194100	0.00525200	0.00901900	0.00285400	0.00034300
315.000	0.00051700	0.00262600	0.00890500	0.01050300	0.00091400	0.00000000
337.500	0.00024200	0.00205500	0.00753500	0.00776300	0.00011500	0.00000000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** FREQUENCY OF OCCURRENCE OF WIND SPEED, DIRECTION AND STABILITY ***

FILE: JFTPA83.Y FORMAT: (6F10.6)
SURFACE STATION NO.: 12842 UPPER AIR STATION NO.: 12842
NAME: TAMPA-FL NAME: TAMPA-FL
YEAR: 1983 YEAR: 1983

ANNUAL: STABILITY CATEGORY E

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00000000	0.00399600	0.00456700	0.00000000	0.00000000	0.00000000
22.500	0.00000000	0.00365300	0.00274000	0.00000000	0.00000000	0.00000000
45.000	0.00000000	0.00799100	0.00422400	0.00000000	0.00000000	0.00000000
67.500	0.00000000	0.01404200	0.00605100	0.00000000	0.00000000	0.00000000
90.000	0.00000000	0.01541100	0.00627900	0.00000000	0.00000000	0.00000000
112.500	0.00000000	0.00707800	0.01016000	0.00000000	0.00000000	0.00000000
135.000	0.00000000	0.00559400	0.00582200	0.00000000	0.00000000	0.00000000
157.500	0.00000000	0.00411000	0.00251200	0.00000000	0.00000000	0.00000000
180.000	0.00000000	0.00422400	0.00331100	0.00000000	0.00000000	0.00000000
202.500	0.00000000	0.00445300	0.00125600	0.00000000	0.00000000	0.00000000
225.000	0.00000000	0.00274000	0.00114200	0.00000000	0.00000000	0.00000000
247.500	0.00000000	0.00171300	0.00285400	0.00000000	0.00000000	0.00000000
270.000	0.00000000	0.00216900	0.00319700	0.00000000	0.00000000	0.00000000
292.500	0.00000000	0.00342500	0.00376800	0.00000000	0.00000000	0.00000000
315.000	0.00000000	0.00570800	0.00479500	0.00000000	0.00000000	0.00000000
337.500	0.00000000	0.00239800	0.00353900	0.00000000	0.00000000	0.00000000

ANNUAL: STABILITY CATEGORY F

DIRECTION (DEGREES)	WIND SPEED CATEGORY 1 (1.500 M/S)	WIND SPEED CATEGORY 2 (2.500 M/S)	WIND SPEED CATEGORY 3 (4.300 M/S)	WIND SPEED CATEGORY 4 (6.800 M/S)	WIND SPEED CATEGORY 5 (9.500 M/S)	WIND SPEED CATEGORY 6 (12.500 M/S)
0.000	0.00572600	0.00970400	0.00000000	0.00000000	0.00000000	0.00000000
22.500	0.00460300	0.00627900	0.00000000	0.00000000	0.00000000	0.00000000
45.000	0.01519100	0.01826500	0.00000000	0.00000000	0.00000000	0.00000000
67.500	0.01847300	0.02180400	0.00000000	0.00000000	0.00000000	0.00000000
90.000	0.02233100	0.02363100	0.00000000	0.00000000	0.00000000	0.00000000
112.500	0.01009300	0.01004600	0.00000000	0.00000000	0.00000000	0.00000000
135.000	0.00659500	0.00753500	0.00000000	0.00000000	0.00000000	0.00000000
157.500	0.00216300	0.00319700	0.00000000	0.00000000	0.00000000	0.00000000
180.000	0.00399800	0.00331100	0.00000000	0.00000000	0.00000000	0.00000000
202.500	0.00233100	0.00205500	0.00000000	0.00000000	0.00000000	0.00000000
225.000	0.00383600	0.00331100	0.00000000	0.00000000	0.00000000	0.00000000
247.500	0.00263800	0.00239800	0.00000000	0.00000000	0.00000000	0.00000000
270.000	0.00346300	0.00319700	0.00000000	0.00000000	0.00000000	0.00000000
292.500	0.00423000	0.00616500	0.00000000	0.00000000	0.00000000	0.00000000
315.000	0.00765200	0.01118800	0.00000000	0.00000000	0.00000000	0.00000000
337.500	0.00392300	0.00582200	0.00000000	0.00000000	0.00000000	0.00000000

SUM OF FREQUENCIES, FTOTAL = 1.00015

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 390700.00	390800.00	390900.00	391000.00	391100.00	391200.00	391300.00	391400.00	391500.00
3107900.00	0.055235	0.054414	0.053323	0.051954	0.050287	0.048313	0.046042	0.043510	0.043960
3107800.00	0.056967	0.058218	0.057280	0.056007	0.054385	0.052394	0.050031	0.047328	0.045791
3107700.00	0.058746	0.060068	0.061596	0.060496	0.058968	0.056996	0.054560	0.051680	0.048443
3107600.00	0.060561	0.061956	0.063561	0.065430	0.064092	0.062192	0.059712	0.056653	0.053079
3107500.00	0.062398	0.063866	0.065545	0.067490	0.069771	0.068054	0.065578	0.062230	0.057965
3107400.00	0.064242	0.065781	0.067527	0.069532	0.071862	0.074608	0.072044	0.068024	0.063140
3107300.00	0.066073	0.067681	0.069486	0.071532	0.073872	0.076319	0.078860	0.074510	0.068805
3107200.00	0.067877	0.069551	0.071408	0.073477	0.075650	0.077367	0.079337	0.081670	0.074934
3107100.00	0.074330	0.073561	0.073297	0.075364	0.077019	0.078294	0.079493	0.080523	0.081360
3107000.00	0.083346	0.083250	0.082779	0.081696	0.079126	0.079392	0.079752	0.079118	0.077076
3106900.00	0.093069	0.093863	0.094362	0.093814	0.091744	0.088448	0.083589	0.078902	0.073701
3106800.00	0.103292	0.105155	0.106882	0.107389	0.106450	0.104048	0.099243	0.090930	0.077856
3106700.00	0.113746	0.116789	0.119897	0.121973	0.122666	0.121966	0.118589	0.110681	0.095329
3106600.00	0.115371	0.118504	0.121694	0.123787	0.124473	0.123689	0.120070	0.111711	0.095660
3106500.00	0.110258	0.112676	0.115019	0.116119	0.115725	0.113787	0.109203	0.100628	0.086534
3106400.00	0.105489	0.107314	0.108975	0.109698	0.108779	0.106578	0.102564	0.095000	0.083622
3106300.00	0.101155	0.102527	0.103711	0.104493	0.103536	0.100679	0.096428	0.090401	0.083000
3106200.00	0.097311	0.098371	0.098907	0.098819	0.097531	0.094942	0.091541	0.087499	0.082604
3106100.00	0.093380	0.093565	0.093536	0.093225	0.092458	0.090293	0.087798	0.084707	0.075568
3106000.00	0.088968	0.088922	0.088697	0.088260	0.087596	0.086509	0.084310	0.077215	0.069111
3105900.00	0.084923	0.084720	0.084380	0.083900	0.083306	0.082260	0.077116	0.070462	0.063216
3105800.00	0.081246	0.080947	0.080555	0.080088	0.079234	0.075026	0.070073	0.064369	0.057835
3105700.00	0.077925	0.077579	0.077180	0.076440	0.072771	0.068514	0.063679	0.058346	0.052684
3105600.00	0.074941	0.074583	0.073919	0.070650	0.066904	0.062679	0.058014	0.053001	0.047814
3105500.00	0.072266	0.071658	0.068703	0.065352	0.061600	0.057465	0.052998	0.048297	0.046348

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 391600.00	391700.00	391800.00	391900.00	392000.00	392100.00	392200.00	392300.00	392400.00
3107900.00	0.045762	0.047575	0.049361	0.051081	0.050618	0.048347	0.046024	0.043707	0.041444
3107800.00	0.047740	0.049723	0.051697	0.053619	0.053100	0.050559	0.047980	0.045431	0.042971
3107700.00	0.049839	0.051985	0.054159	0.056299	0.055720	0.052887	0.050032	0.047251	0.044825
3107600.00	0.052006	0.054047	0.056259	0.058648	0.058005	0.054868	0.051905	0.049138	0.046974
3107500.00	0.053741	0.055632	0.057863	0.060461	0.059771	0.056384	0.053336	0.050700	0.048913
3107400.00	0.057800	0.056850	0.058882	0.061627	0.060923	0.057403	0.054512	0.052319	0.050566
3107300.00	0.062262	0.057430	0.058786	0.061498	0.060857	0.057516	0.055323	0.053549	0.052074
3107200.00	0.066551	0.058203	0.056735	0.058995	0.058570	0.056108	0.055134	0.054110	0.053412
3107100.00	0.070391	0.058441	0.051461	0.052345	0.052324	0.052158	0.052726	0.053797	0.054871
3107000.00	0.073637	0.056204	0.042386	0.040193	0.040772	0.043989	0.047510	0.053074	0.058387
3106900.00	0.064267	0.052868	0.029706	0.022784	0.023645	0.028587	0.041729	0.055060	0.063933
3106800.00	0.060534	0.036426	0.019210	0.012962	0.012170	0.012847	0.037763	0.061805	0.076371
3106700.00	0.070532	0.036040	0.016501	0.005444	0.002822	0.021645	0.049712	0.079903	0.099687
3106600.00	0.069913	0.033144	0.009751	0.003354	0.009744	0.030074	0.046591	0.071451	0.093033
3106500.00	0.066499	0.036369	0.016450	0.010666	0.016303	0.019401	0.031845	0.046802	0.066147
3106400.00	0.069299	0.054864	0.028236	0.022996	0.022851	0.023570	0.031749	0.045272	0.056926
3106300.00	0.074536	0.055779	0.040370	0.041188	0.037776	0.032334	0.038624	0.049061	0.056312
3106200.00	0.069798	0.056233	0.050224	0.055251	0.052106	0.043567	0.044581	0.050936	0.057873
3106100.00	0.065183	0.055091	0.057236	0.064139	0.061595	0.052171	0.048111	0.051844	0.056477
3106000.00	0.060542	0.055749	0.061183	0.068426	0.066425	0.057381	0.050572	0.051624	0.054755
3105900.00	0.055897	0.056991	0.062821	0.069702	0.068124	0.059931	0.053064	0.050486	0.052738
3105800.00	0.052450	0.057307	0.062943	0.069200	0.067935	0.060694	0.054246	0.048787	0.050513
3105700.00	0.052184	0.056957	0.062176	0.067767	0.066731	0.060373	0.054492	0.049149	0.047916
3105600.00	0.051261	0.055780	0.060575	0.065495	0.064637	0.059082	0.053723	0.048721	0.045168
3105500.00	0.050161	0.054246	0.058513	0.062842	0.062112	0.057256	0.052512	0.048005	0.043831

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE ANNUAL AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

*** NETWORK ID: E3 ; NETWORK TYPE: GRIDCART ***

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

Y-COORD (METERS)	X-COORD (METERS) 392500.00	392600.00	392700.00	392800.00	392900.00	393000.00	393100.00
3107900.00	0.039621	0.038351	0.037086	0.035839	0.034621	0.033443	0.032311
3107800.00	0.041365	0.039943	0.038533	0.037149	0.035804	0.034508	0.033286
3107700.00	0.043224	0.041635	0.040067	0.038534	0.037051	0.035653	0.034466
3107600.00	0.045191	0.043426	0.041691	0.040001	0.038407	0.037093	0.035736
3107500.00	0.047204	0.045313	0.043412	0.041612	0.040179	0.038656	0.037102
3107400.00	0.048888	0.047199	0.045319	0.043809	0.042124	0.040353	0.038568
3107300.00	0.050607	0.049110	0.047969	0.046254	0.044260	0.042193	0.040140
3107200.00	0.052581	0.052047	0.050756	0.048963	0.046612	0.044190	0.041823
3107100.00	0.056017	0.055579	0.054033	0.051853	0.049207	0.046361	0.045739
3107000.00	0.060488	0.060006	0.057989	0.056152	0.056347	0.055502	0.054137
3106900.00	0.066777	0.068687	0.070007	0.069697	0.068253	0.065846	0.063014
3106800.00	0.084717	0.087625	0.087049	0.084467	0.080863	0.076595	0.072127
3106700.00	0.108130	0.108715	0.105178	0.099762	0.093701	0.087347	0.081180
3106600.00	0.103592	0.105798	0.103357	0.098652	0.093055	0.087017	0.081046
3106500.00	0.079196	0.085266	0.086575	0.085068	0.082063	0.078099	0.073772
3106400.00	0.063802	0.068077	0.071594	0.072452	0.071583	0.069361	0.066568
3106300.00	0.061053	0.063040	0.062897	0.061421	0.061887	0.061094	0.059644
3106200.00	0.060455	0.061421	0.061010	0.059613	0.057366	0.054671	0.053167
3106100.00	0.060739	0.060825	0.060043	0.058574	0.056212	0.053731	0.051244
3106000.00	0.057925	0.060688	0.059606	0.057634	0.055404	0.053085	0.050757
3105900.00	0.055187	0.057468	0.058891	0.056946	0.054831	0.052643	0.050446
3105800.00	0.052482	0.054019	0.055331	0.056391	0.054410	0.052339	0.050255
3105700.00	0.049368	0.050781	0.052059	0.053155	0.054055	0.052120	0.050142
3105600.00	0.046484	0.047807	0.049050	0.050164	0.051125	0.051926	0.050073
3105500.00	0.043827	0.045077	0.046284	0.047401	0.048399	0.049266	0.050000

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** THE MAXIMUM 10 ANNUAL AVERAGE CONCENTRATION VALUES FOR GROUP: ALL ***
INCLUDING SOURCE(S): 3 ,

** CONC OF NOX IN MICROGRAMS/CUBIC-METER **

RANK	CONC	AT	RECEPTOR (XR,YR)	OF TYPE	RANK	CONC	AT	RECEPTOR (XR,YR)	OF TYPE
1.	0.124473	AT (	391100.00, 3106600.00)	GC	6.	0.121966	AT (	391200.00, 3106700.00)	GC
2.	0.123787	AT (	391000.00, 3106600.00)	GC	7.	0.121694	AT (	390900.00, 3106600.00)	GC
3.	0.123689	AT (	391200.00, 3106600.00)	GC	8.	0.120070	AT (	391300.00, 3106600.00)	GC
4.	0.122666	AT (	391100.00, 3106700.00)	GC	9.	0.119897	AT (	390900.00, 3106700.00)	GC
5.	0.121973	AT (	391000.00, 3106700.00)	GC	10.	0.118589	AT (	391300.00, 3106700.00)	GC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR
BD = BOUNDARY

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** Message Summary For ISC2 Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 0 Informational Message(s)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** ISCLT2 Finishes Successfully ***
****

ISC MODEL RESULTS
NO_x - ANNUAL
100 METER GRID
YEAR: 1984

```
NO ECHO

************************************
*** SETUP Finishes Successfully ***
************************************
```

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** MODEL SETUP OPTIONS SUMMARY ***

- -

**Model Is Setup For Calculation of Average CONCentration Values.

**Model Uses RURAL Dispersion.

**Model Uses Regulatory DEFAULT Options:
1. Final Plume Rise.
2. Stack-tip Downwash.
3. Buoyancy-induced Dispersion.
4. Default Wind Profile Exponents.
5. Default Vertical Potential Temperature Gradients.
6. "Upper Bound" Values For Supersquat Buildings.
7. No Exponential Decay for RURAL Mode

**Model Assumes Receptors on FLAT Terrain.

**Model Assumes No FLAGPOLE Receptor Heights.

**Model Calculates 1 STAR Average(s) for the Following Months: 0 0 0 0 0 0 0 0 0 0 0 0
Seasons/Quarters: 0 0 0 0
and Annual: 1

**Model Assumes 1 STAR Summaries In Data File for the Averaging Periods Identified Above

**This Run Includes: 1 Source(s); 1 Source Group(s); and 625 Receptor(s)

**The Model Assumes A Pollutant Type of: NOX

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Long Term Values by Receptor (RECTABLE Keyword)
Model Outputs Tables of Maximum Long Term Values (MAXTABLE Keyword)
Model Outputs External File(s) of Long Term Values for Plotting (PLOTFILE Keyword)

**Misc. Inputs: Anem. Hgt. (m) = 10.00 ; Decay Coef. = 0.0000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SECOND ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/CUBIC-METER

**Input Runstream File: st30n84.ann ; **Output Print File: st30n84.out
**Error Message File: st30n83a.err

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** POINT SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (USER UNITS)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	STACK HEIGHT (METERS)	STACK TEMP. (DEG.K)	STACK EXIT VEL. (M/SEC)	STACK DIAMETER (METERS)	BUILDING EXISTS	EMISSION RATE SCALAR VARY BY
3	0	0.44000E+00	391945.0	3106656.0	0.0	6.10	720.37	45.04	0.61	YES	

*** MODELING OPTIONS USED: CONC RURAL FLAT DFAULT

*** SOURCE IDs DEFINING SOURCE GROUPS ***

GROUP ID	SOURCE IDs
ALL	3 ,