JEA KENNEDY GENERATING STATION

JEA Kennedy Generating Station

Title V Renewal Application

June 2002

JEA℠
Building Community℠

building a world of difference™ | BLACK & VEATCH

21 West Church Street
Jacksonville, Florida 32202-3139

JEA

ELECTRIC
WATER
SEWER

RECEIVED
JUL 02 2002
BUREAU OF AIR REGULATION

July 1, 2002

Mr. Scott Sheplak, P.E.
Administrator
Bureau of Air Regulation
Division of Air Resources Management
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

RE: Kennedy Generating Station Title V Permit No. 0310047-011-AV
Title V Permit Renewal Application

Dear Mr. Sheplak:

Enclosed please find an original and four (4) copies of the Title V permit renewal application for the Kennedy Generating station.

If you have any questions regarding this submittal, please call me at (904) 665-6247.

Sincerely,

N. Bert Gianazza, P.E.
Environmental Assessments
& Permitting

Enclosures

cc: Steve Pace, P.E., RESD

Department of
Environmental Protection

Division of Air Resources Management

APPLICATION FOR AIR PERMIT - TITLE V SOURCE

See Instructions for Form No. 62-210.900(1)

I. APPLICATION INFORMATION

Identification of Facility

1. Facility Owner/Company Name: JEA

2. Site Name: Kennedy Generating Station

3. Facility Identification Number: 0310047 [ ] Unknown

4. Facility Location:
Street Address or Other Locator: 4215 Talleyrand Avenue
City: Jacksonville County: Duval Zip Code: 32206

5. Relocatable Facility?
[ ] Yes [X] No

6. Existing Permitted Facility?
[X] Yes [ ] No

Application Contact

1. Name and Title of Application Contact: Bert Gianazza - Environmental Health & Safety Group

2. Application Contact Mailing Address:
Organization/Firm: JEA
Street Address: 21 West Church Street
City: Jacksonville State: Florida Zip Code: 32202

3. Application Contact Telephone Numbers:
Telephone: (904)665-6247 Fax: (904)665-7376

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	7-2-02
2. Permit Number:	0310047-012-AV (Renewal)
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

RECEIVED
JUL 02 2002
BUREAU OF AIR REGULATION

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Initial Title V air operation permit for an existing facility which is classified as a Title V source.

[ ] Initial Title V air operation permit for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number:____________________________________

[ ] Title V air operation permit revision to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: ______________________________________

Operation permit number to be revised:____________________________________

[ ] Title V air operation permit revision or administrative correction to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. (Also check Air Construction Permit Application below.)

Operation permit number to be revised/corrected:__________________________

[X] Title V air operation permit revision for reasons other than construction or modification of an emissions unit. Give reason for the revision; e.g., to comply with a new applicable requirement or to request approval of an "Early Reductions" proposal.

Operation permit number to be revised: _____________________

Reason for Application: **RENEWAL**. (Permit No: 0310047-008-AV)

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Air construction permit to construct or modify one or more emissions units.

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official:
   James M. Chansler, P.E., D.P.A. Vice President, Operations and Maintenance
2. Owner/Authorized Representative or Responsible Official Mailing Address:
   Organization/Firm: JEA
   Street Address: 21 West Church Street
   City: Jacksonville State: Florida Zip Code: 32202
3. Owner/Authorized Representative or Responsible Official Telephone Numbers:
   Telephone: (904) 665 -4433 Fax: (904) 665 - 7990
4. Owner/Authorized Representative or Responsible Official Statement:

   I, the undersigned, am the owner or authorized representative(check here [ ], if so) or the responsible official (check here [X], if so) 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. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained 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. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

   Signature Date July 1, 2002

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: Bert Gianazza
   Registration Number: 38640
2. Professional Engineer Mailing Address:
   Organization/Firm: JEA Tower 9
   Street Address: 21 W Church St
   City: Jacksonville State: FL Zip Code: 32202
3. Professional Engineer Telephone Numbers:
   Telephone: (904) 665 - 6247 Fax: (904)- 665 7376

4. Professional Engineer Statement:

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

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution 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 found in the Florida Statutes 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.

If the purpose of this application is to obtain a Title V source air operation permit (check here [X], if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [ ], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further 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.

Signature

Date July 1, 2002

(seal)

No. 38640

* Attach any exception to certification statement.

Scope of Application

Emissions Unit ID	**Description of Emissions Unit**	**Permit Type**	**Processing Fee**
003	Combustion Turbine No. 3		
004	Combustion Turbine No. 4		
005	Combustion Turbine No. 5		
015	Combustion Turbine No. 7		

Application Processing Fee

Check one: [ ] Attached - Amount: $____________________ [X] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations:

2. Projected or Actual Date of Commencement of Construction:

3. Projected Date of Completion of Construction:

Application Comment

This application is for a renewal of the facility's Title V operating permit.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates:
Zone: 17 East (km): 440.065 North (km): 3359.150

2. Facility Latitude/Longitude:
Latitude (DD/MM/SS): 30/21/52 Longitude (DD/MM/SS): 81/37/25

3. Governmental Facility Code: 4	4. Facility Status Code: A	5. Facility Major Group SIC Code: 49	6. Facility SIC(s): 4911

7. Facility Comment (limit to 500 characters):

Facility Contact

1. Name and Title of Facility Contact: Bert Gianazza -

2. Facility Contact Mailing Address:
Organization/Firm: JEA
Street Address: 21 West Church Street
City: Jacksonville State: Florida Zip Code: 32202

3. Facility Contact Telephone Numbers:
Telephone: (904) 665-6247 Fax: (904) 665-7376

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source? [ ] Unknown
2. [X] Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?
4. [ ] Major Source of Hazardous Air Pollutants (HAPs)?
5. [ ] Synthetic Minor Source of HAPs?
6. [X] One or More Emissions Units Subject to NSPS?
7. [ ] One or More Emission Units Subject to NESHAP?
8. [X] Title V Source by EPA Designation?
9. Facility Regulatory Classifications Comment (limit to 200 characters):

List of Applicable Regulations

Emissions unit applicable regulations hereby incorporated by reference the Title V core list of applicable regulations that all Title V sources are presumptively subject.	
Facility-wide applicable regulations specified in Section II of KGS Title V Operating Permit No: 0310047-008-AV are hereby incorporated by reference.	

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
CO	A				
NO_X	A				
PM	A				
PM_{10}	A				
SO_2	A				
VOC	B				

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location:
[X] Attached, Document ID: Attachment 1 [ ] Not Applicable [ ] Waiver Requested

2. Facility Plot Plan:
[X] Attached, Document ID: Attachment 2 [ ] Not Applicable [ ] Waiver Requested

3. Process Flow Diagram(s):
[X] Attached, Document ID: Attachment 3 [ ] Not Applicable [ ] Waiver Requested

4. Precautions to Prevent Emissions of Unconfined Particulate Matter:
[X] Attached, Document ID: Attachment 4 [X] Not Applicable [ ] Waiver Requested

5. Fugitive Emissions Identification:
[X] Attached, Document ID: Attachment 5 [X] Not Applicable [ ] Waiver Requested

6. Supplemental Information for Construction Permit Application:
[ ] Attached, Document ID:________ [X] Not Applicable

7. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

8. List of Proposed Insignificant Activities:
[X] Attached, Document ID: Attachment 6 [ ] Not Applicable

9. List of Equipment/Activities Regulated under Title VI:

[ ] Attached, Document ID:________

[X] Equipment/Activities On site but Not Required to be Individually Listed,

Document ID: Attachment 7

[ ] Not Applicable

10. Alternative Methods of Operation:
[ ] Attached, Document ID:________ [X] Not Applicable

11. Alternative Modes of Operation (Emissions Trading):
[ ] Attached, Document ID:________ [X] Not Applicable

12. Identification of Additional Applicable Requirements:
[ ] Attached, Document ID:________ [X] Not Applicable

13. Risk Management Plan Verification:

[ ] Plan previously submitted to Chemical Emergency Preparedness and Prevention Office (CEPPO). Verification of submittal attached (Document ID:________) or previously submitted to DEP (Date and DEP Office:________________________)

[ ] Plan to be submitted to CEPPO (Date required:________________________)

[X] Not Applicable

14. Compliance Report and Plan:
[X] Attached, Document ID: Attachment 8 [ ] Not Applicable

15. Compliance Certification (Hard-copy Required):
[X] Attached, Document ID: Attachment 9 [ ] Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[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, a 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.

[ ] 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.

2. Regulated or Unregulated Emissions Unit? (Check one)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Combustion Turbine No. 3

4. Emissions Unit Identification Number:
ID: 003

[ ] No ID
[ ] ID Unknown

5. Emissions Unit Status Code: A	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? [ ]

9. Emissions Unit Comment: (Limit to 500 Characters)

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

2. Control Device or Method Code(s):

Emissions Unit Details

1. Package Unit:
   Manufacturer: Westinghouse Model Number: W501G

2. Generator Nameplate Rating: 56.2 MW

3. Incinerator Information: Not applicable
   Dwell Temperature: °F
   Dwell Time: seconds
   Incinerator Afterburner Temperature: °F

B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate: 744 (See note below) mmBtu/hr

2. Maximum Incineration Rate: lb/hr tons/day

3. Maximum Process or Throughput Rate:

4. Maximum Production Rate:

5. Requested Maximum Operating Schedule:

24 hours/day	7 days/week
52 weeks/year	8,760 hours/year

6. Operating Capacity/Schedule Comment (limit to 200 characters): Heat Input Curves on-file with the FDEP. A copy of the heat input curves is also included in Attachment 10.

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

Emissions unit applicable regulations hereby incorporated by reference the Title V core list of applicable regulations that all Title V sources are presumptively subject.	
Applicable regulations specified in KGS Title V Operating Permit No: 0310047-008-AV are hereby incorporated by reference.	

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? EU003

2. Emission Point Type Code: 1

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):
Stack serving EU003.

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code: V

6. Stack Height: Approx. 30 feet

7. Exit Diameter: 12.9 feet

8. Exit Temperature: Approx. 800 °F

9. Actual Volumetric Flow Rate: Unknown acfm

10. Water Vapor: %

11. Maximum Dry Standard Flow Rate: dscfm

12. Nonstack Emission Point Height: feet

13. Emission Point UTM Coordinates:
Zone: 17 East (km): 439.78 North (km): 3359.16

14. Emission Point Comment (limit to 200 characters): Fields 10 and 11 were not completed because this emissions unit is not subject to a grain loading standard.

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment ___1__ of ___1__

1. Segment Description (Process/Fuel Type) (limit to 500 characters):
No. 2 fuel oil used in Combustion Turbine No. 3

2. Source Classification Code (SCC):
20100101

3. SCC Units:
Thousand Gallons Burned

4. Maximum Hourly Rate:
5.314

5. Maximum Annual Rate:
46,553

6. Estimated Annual Activity Factor:

7. Maximum % Sulfur:

8. Maximum % Ash:

9. Million Btu per SCC Unit:
140

10. Segment Comment (limit to 200 characters): Only No. 2 fuel oil is fired in this emissions unit.

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):

2. Source Classification Code (SCC):

3. SCC Units:

4. Maximum Hourly Rate:

5. Maximum Annual Rate:

6. Estimated Annual Activity Factor:

7. Maximum % Sulfur:

8. Maximum % Ash:

9. Million Btu per SCC Unit:

10. Segment Comment (limit to 200 characters):

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			**NS**
NOX			**NS**
PM			**NS**
PM_{10}			**NS**
SO_2			**WP**

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: SO_2

2. Total Percent Efficiency of Control:

3. Potential Emissions: 375.72 lb/hour 1,645.65 tons/year

4. Synthetically Limited? [ ]

5. Range of Estimated Fugitive Emissions:
[ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year

6. Emission Factor: 0.505 lb/mmBtu
Reference: AP-42, Section 3.1

7. Emissions Method Code: 3

8. Calculation of Emissions (limit to 600 characters):
Emission factor from AP-42, Section 3.1, Table 3.1-2a. SO_2 emission factor determined using 0.5% sulfur fuel content as given in the existing JEA Kennedy Title V operating permit.
Hourly SO_2 emissions:
(0.505 lb/mmBtu)(744 mmBtu/hr) = 375.72 lb/hr
Annual SO_2 emissions:
(0.505 lb/mmBtu)(744 mmBtu/hr)(8,760 hr/yr)(ton/2,000 lb) = 1,645.65 ton/yr

9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Emission estimates are shown, although SO_2 is not an emissions limited pollutant for Combustion Turbine No. 3.

Allowable Emissions Allowable Emissions ___1___ of ___1___

1. Basis for Allowable Emissions Code: OTHER

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units: 0.5 % Fuel Sulfur

4. Equivalent Allowable Emissions: 375.72 lb/hour 1,645.65 tons/year

5. Method of Compliance (limit to 60 characters):
"As received" fuel sulfur analyses.

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation ___1___ of ___1___

1. Visible Emissions Subtype: V20	2. Basis for Allowable Opacity: [X] Rule [ ] Other

3. Requested Allowable Opacity:
Normal Conditions: 20 % Exceptional Conditions: %
Maximum Period of Excess Opacity Allowed: min/hour

4. Method of Compliance: Method 9 is used to determine compliance with the visible emissions standard. Biennial (odd year) compliance testing will be conducted, except if No. 2 fuel oil is burned for less than 400 hours during the previous even year or the current odd year in question.

5. Visible Emissions Comment (limit to 200 characters): The opacity limit and compliance determination requirements are included in existing Permit 0310047-011-AV.

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):

3. CMS Requirement: [ ] Rule [ ] Other

4. Monitor Information:
Manufacturer:
Model Number: Serial Number:

5. Installation Date:	6. Performance Specification Test Date:

7. Continuous Monitor Comment (limit to 200 characters):

J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements

1. Process Flow Diagram
[X] Attached, Document ID: Attachment 3 [ ] Not Applicable [ ] Waiver Requested

2. Fuel Analysis or Specification
[X] Attached, Document ID: Attachment 10 [ ] Not Applicable [ ] Waiver Requested

3. Detailed Description of Control Equipment
[ ] Attached, Document ID:________ [X] Not Applicable [ ] Waiver Requested

4. Description of Stack Sampling Facilities
[ ] Attached, Document ID:________ [X] Not Applicable [ ] Waiver Requested

5. Compliance Test Report

[X] Attached, Document ID: Attachment 16

[ ] Previously submitted, Date:_______________

[ ] Not Applicable

6. Procedures for Startup and Shutdown
[X] Attached, Document ID: Attachment 11 [ ] Not Applicable [ ] Waiver Requested

7. Operation and Maintenance Plan
[ ] Attached, Document ID: [X] Not Applicable [ ] Waiver Requested

8. Supplemental Information for Construction Permit Application
[ ] Attached, Document ID:________ [X] Not Applicable

9. Other Information Required by Rule or Statute
[ ] Attached, Document ID:________ [X] Not Applicable

10. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation
[ ] Attached, Document ID:________ [X] Not Applicable

12. Alternative Modes of Operation (Emissions Trading)
[ ] Attached, Document ID:________ [X] Not Applicable

13. Identification of Additional Applicable Requirements
[ ] Attached, Document ID:________ [X] Not Applicable

14. Compliance Assurance Monitoring Plan
[ ] Attached, Document ID:________ [X] Not Applicable

15. Acid Rain Part Application (Hard-copy Required)

[ ] Acid Rain Part – Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID:________

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID:________

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID:________

[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID:________

[ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
Attached, Document ID:________

[ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
Attached, Document ID:________

[X] Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[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, a 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.

[ ] 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.

2. Regulated or Unregulated Emissions Unit? (Check one)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Combustion Turbine No. 4

4. Emissions Unit Identification Number:
ID: 004
[ ] No ID
[ ] ID Unknown

5. Emissions Unit Status Code: A	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? [ ]

9. Emissions Unit Comment: (Limit to 500 Characters)

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):
2. Control Device or Method Code(s):

Emissions Unit Details

1. Package Unit: Manufacturer: Westinghouse	Model Number: W501G	
2. Generator Nameplate Rating: 56.2	MW	
3. Incinerator Information: Not applicable		
Dwell Temperature:		°F
Dwell Time:		seconds
Incinerator Afterburner Temperature:		°F

B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate: 744 (see note below) mmBtu/hr		
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:		
	24 hours/day	7 days/week
	52 weeks/year	8,760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters): Heat Input Curves on file with the FDEP. A copy of the heat input curves is also included in Attachment 10.		

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

Emissions unit applicable regulations hereby incorporated by reference the Title V core list of applicable regulations that all Title V sources are presumptively subject.	
Applicable regulations specified in KGS Title V Operating Permit No: 0310047-008-AV are hereby incorporated by reference.	

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? EU004

2. Emission Point Type Code: 1

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code: V

6. Stack Height: Approx. 30 feet

7. Exit Diameter: 12.9 feet

8. Exit Temperature: Approx. 800 °F

9. Actual Volumetric Flow Rate: Unknown acfm

10. Water Vapor: %

11. Maximum Dry Standard Flow Rate: dscfm

12. Nonstack Emission Point Height: feet

13. Emission Point UTM Coordinates:

Zone: East (km): North (km):

14. Emission Point Comment (limit to 200 characters): Fields 10 and 11 were not completed because this emissions unit is not subject to a grain loading standard.

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment ___1__ of ___1__

1. Segment Description (Process/Fuel Type) (limit to 500 characters):
No. 2 fuel oil used in Combustion Turbine No. 4

2. Source Classification Code (SCC): 20100101	3. SCC Units: Thousand Gallons Burned

4. Maximum Hourly Rate: 5.314	5. Maximum Annual Rate: 46,553	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 140

10. Segment Comment (limit to 200 characters): Only No. 2 fuel oil is fired in this emissions unit.

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):

2. Source Classification Code (SCC):	3. SCC Units:

4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:

10. Segment Comment (limit to 200 characters):

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			**NS**
NO_X			**NS**
PM			**NS**
PM_{10}			**NS**
SO_2			**WP**

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: SO_2

2. Total Percent Efficiency of Control:

3. Potential Emissions: 375.72 lb/hour 1,645.65 tons/year

4. Synthetically Limited? [ ]

5. Range of Estimated Fugitive Emissions:
[ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year

6. Emission Factor: 0.505 lb/mmBtu
Reference: AP-42, Section 3.1

7. Emissions Method Code: 3

8. Calculation of Emissions (limit to 600 characters):
Emission factor from AP-42, Section 3.1, Table 3.1-2a. SO_2 emission factor determined using 0.5% sulfur fuel content as given in the existing JEA Kennedy Title V operating permit.
Hourly SO_2 emissions:
(0.505 lb/mmBtu)(744 mmBtu/hr) = 375.72 lb/hr
Annual SO_2 emissions:
(0.505 lb/mmBtu)(744 mmBtu/hr)(8,760 hr/yr)(ton/2,000 lb) = 1,645.65 ton/yr

9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Emission estimates are shown, although SO_2 is not an emissions limited pollutant for Combustion Turbine No. 3.

Allowable Emissions Allowable Emissions ___1___ of __1____

1. Basis for Allowable Emissions Code: OTHER

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units: 0.5 % Fuel Sulfur

4. Equivalent Allowable Emissions: 375.72 lb/hour 1,645.65 tons/year

5. Method of Compliance (limit to 60 characters):
"As received" fuel sulfur analyses.

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation ___1___ of ___1___

1. Visible Emissions Subtype: V20	2. Basis for Allowable Opacity: [X] Rule [ ] Other

3. Requested Allowable Opacity:
Normal Conditions: 20 % Exceptional Conditions: %
Maximum Period of Excess Opacity Allowed: min/hour

4. Method of Compliance: Method 9 is used to determine compliance with the visible emissions standard. Biennial (odd year) compliance testing will be conducted, except if No. 2 fuel oil is burned for less than 400 hours during the previous even year or the current odd year in question.

5. Visible Emissions Comment (limit to 200 characters): The opacity limit and compliance determination requirements are included in existing Permit 0310047-011-AV.

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):

3. CMS Requirement: [ ] Rule [ ] Other

4. Monitor Information:
Manufacturer:
Model Number: Serial Number:

5. Installation Date:	6. Performance Specification Test Date:

7. Continuous Monitor Comment (limit to 200 characters):

J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements

1. Process Flow Diagram
   [X] Attached, Document ID: Attachment 3 [ ] Not Applicable [ ] Waiver Requested

2. Fuel Analysis or Specification
   [X] Attached, Document ID: Attachment 10 [ ] Not Applicable [ ] Waiver Requested

3. Detailed Description of Control Equipment
   [ ] Attached, Document ID:________ [X] Not Applicable [ ] Waiver Requested

4. Description of Stack Sampling Facilities
   [ ] Attached, Document ID:________ [X] Not Applicable [ ] Waiver Requested

5. Compliance Test Report
   [X] Attached, Document ID: Attachment 16
   [ ] Previously submitted, Date:________________
   [ ] Not Applicable

6. Procedures for Startup and Shutdown
   [X] Attached, Document ID: Attachment 11 [ ] Not Applicable [ ] Waiver Requested

7. Operation and Maintenance Plan
   [ ] Attached, Document ID: [X] Not Applicable [ ] Waiver Requested

8. Supplemental Information for Construction Permit Application
   [ ] Attached, Document ID:________ [X] Not Applicable

9. Other Information Required by Rule or Statute
   [ ] Attached, Document ID:________ [X] Not Applicable

10. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation
[ ] Attached, Document ID:________ [X] Not Applicable

12. Alternative Modes of Operation (Emissions Trading)
[ ] Attached, Document ID:________ [X] Not Applicable

13. Identification of Additional Applicable Requirements
[ ] Attached, Document ID:________ [X] Not Applicable

14. Compliance Assurance Monitoring Plan
[ ] Attached, Document ID:________ [X] Not Applicable

15. Acid Rain Part Application (Hard-copy Required)

[ ] Acid Rain Part – Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID:________

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID:________

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID:________

[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID:________

[ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
Attached, Document ID:________

[ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
Attached, Document ID:________

[X] Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[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, a 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.

[ ] 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.

2. Regulated or Unregulated Emissions Unit? (Check one)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Combustion Turbine No. 5

4. Emissions Unit Identification Number:
ID: 005
[ ] No ID
[ ] ID Unknown

5. Emissions Unit Status Code: A	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? [ ]

9. Emissions Unit Comment: (Limit to 500 Characters)

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):

2. Control Device or Method Code(s):

Emissions Unit Details

1. Package Unit:
   Manufacturer: Westinghouse   Model Number: W501G

2. Generator Nameplate Rating: 56.2   MW

3. Incinerator Information: Not applicable
   Dwell Temperature: °F
   Dwell Time: seconds
   Incinerator Afterburner Temperature: °F

B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate: 744 (See note below)		mmBtu/hr
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:	24 hours/day 52 weeks/year	7 days/week 8,760 hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters): Heat Input Curves on file with the FDEP. A copy of the heat input curves is also included in Attachment 10.		

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

<u>List of Applicable Regulations</u>

Emissions unit applicable regulations hereby incorporated by reference the Title V core list of applicable regulations that all Title V sources are presumptively subject.	
Applicable regulations specified in KGS Title V Operating Permit No: 0310047-008-AV are hereby incorporated by reference.	

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? EU005

2. Emission Point Type Code: 1

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code: V	6. Stack Height: Approx. 30 feet	7. Exit Diameter: 12.9 feet
8. Exit Temperature: Approx. 800 °F	9. Actual Volumetric Flow Rate: Unknown acfm	10. Water Vapor: %

11. Maximum Dry Standard Flow Rate: dscfm

12. Nonstack Emission Point Height: feet

13. Emission Point UTM Coordinates:

Zone: East (km): North (km):

14. Emission Point Comment (limit to 200 characters): Fields 10 and 11 were not completed because this emissions unit is not subject to a grain loading standard.

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment ___1__ of ___1__

1. Segment Description (Process/Fuel Type) (limit to 500 characters):
   No. 2 fuel oil used in Combustion Turbine No. 5

2. Source Classification Code (SCC): 20100101	3. SCC Units: Thousand Gallons Burned

4. Maximum Hourly Rate: 5.314	5. Maximum Annual Rate: 46,553	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 140

10. Segment Comment (limit to 200 characters): Only No. 2 fuel oil is fired in this emissions unit.

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):

2. Source Classification Code (SCC):	3. SCC Units:

4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:

10. Segment Comment (limit to 200 characters):

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			**NS**
NO_X			**NS**
PM			**NS**
PM_{10}			**NS**
SO_2			**WP**

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: SO_2

2. Total Percent Efficiency of Control:

3. Potential Emissions: 375.72 lb/hour 1,645.65 tons/year

4. Synthetically Limited? [ ]

5. Range of Estimated Fugitive Emissions:
[ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year

6. Emission Factor: 0.505 lb/mmBtu
Reference: AP-42, Section 3.1

7. Emissions Method Code: 3

8. Calculation of Emissions (limit to 600 characters):
Emission factor from AP-42, Section 3.1, Table 3.1-2a. SO_2 emission factor determined using 0.5% sulfur fuel content as given in the existing JEA Kennedy Title V operating permit.
Hourly SO_2 emissions:
(0.505 lb/mmBtu)(744 mmBtu/hr) = 375.72 lb/hr
Annual SO_2 emissions:
(0.505 lb/mmBtu)(744 mmBtu/hr)(8,760 hr/yr)(ton/2,000 lb) = 1,645.65 ton/yr

9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Emission estimates are shown, although SO_2 is not an emissions limited pollutant for Combustion Turbine No. 3.

Allowable Emissions Allowable Emissions ___1___ of __1____

1. Basis for Allowable Emissions Code:
OTHER

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units:
0.5 % Fuel Sulfur

4. Equivalent Allowable Emissions:
375.72 lb/hour 1,645.65 tons/year

5. Method of Compliance (limit to 60 characters):
"As received" fuel sulfur analyses.

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation ___1___ of ___1___

1. Visible Emissions Subtype: V20	2. Basis for Allowable Opacity: [X] Rule [ ] Other

3. Requested Allowable Opacity:
Normal Conditions: 20 % Exceptional Conditions: %
Maximum Period of Excess Opacity Allowed: min/hour

4. Method of Compliance: Method 9 is used to determine compliance with the visible emissions standard. Biennial (odd year) compliance testing will be conducted, except if No. 2 fuel oil is burned for less than 400 hours during the previous even year or the current odd year in question.

5. Visible Emissions Comment (limit to 200 characters): The opacity limit and compliance determination requirements are included in existing Permit 0310047-011-AV.

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other

4. Monitor Information:
Manufacturer:
Model Number: Serial Number:

5. Installation Date:	6. Performance Specification Test Date:

7. Continuous Monitor Comment (limit to 200 characters):

J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements

1. Process Flow Diagram
[X] Attached, Document ID: Attachment 3 [ ] Not Applicable [ ] Waiver Requested

2. Fuel Analysis or Specification
[X] Attached, Document ID: Attachment 10 [ ] Not Applicable [ ] Waiver Requested

3. Detailed Description of Control Equipment
[ ] Attached, Document ID:________ [X] Not Applicable [ ] Waiver Requested

4. Description of Stack Sampling Facilities
[ ] Attached, Document ID:________ [X] Not Applicable [ ] Waiver Requested

5. Compliance Test Report

[X] Attached, Document ID: Attachment 16

[ ] Previously submitted, Date:_______________

[ ] Not Applicable

6. Procedures for Startup and Shutdown
[X] Attached, Document ID: Attachment 11 [ ] Not Applicable [ ] Waiver Requested

7. Operation and Maintenance Plan
[ ] Attached, Document ID:________ [X] Not Applicable [ ] Waiver Requested

8. Supplemental Information for Construction Permit Application
[ ] Attached, Document ID:________ [X] Not Applicable

9. Other Information Required by Rule or Statute
[ ] Attached, Document ID:________ [X] Not Applicable

10. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation
[ ] Attached, Document ID:________ [X] Not Applicable

12. Alternative Modes of Operation (Emissions Trading)
[ ] Attached, Document ID:________ [X] Not Applicable

13. Identification of Additional Applicable Requirements
[ ] Attached, Document ID:________ [X] Not Applicable

14. Compliance Assurance Monitoring Plan
[ ] Attached, Document ID:________ [X] Not Applicable

15. Acid Rain Part Application (Hard-copy Required)

[ ] Acid Rain Part – Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID:________

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID:________

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID:________

[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID:________

[ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
Attached, Document ID:________

[ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
Attached, Document ID:________

[X] Not Applicable

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through J as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION
(All Emissions Units)

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[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, a 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.

[ ] 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.

2. Regulated or Unregulated Emissions Unit? (Check one)

[X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

[ ] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

3. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Combustion Turbine No. 7

4. Emissions Unit Identification Number:
ID: 015
[ ] No ID
[ ] ID Unknown

5. Emissions Unit Status Code: A	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code: 49	8. Acid Rain Unit? [X]

9. Emissions Unit Comment: (Limit to 500 Characters)

Emissions Unit Control Equipment

1. Control Equipment/Method Description (Limit to 200 characters per device or method):
A Dry Low NO_x combustor is used to minimize NO_x emissions. A water injection system is used for NO_x control when firing No. 2 fuel oil.

2. Control Device or Method Code(s): 025 and 028 (with fuel oil firing)

Emissions Unit Details

1. Package Unit:
Manufacturer: General Electric Model Number: PG 7241 FA

2. Generator Nameplate Rating: 170 MW

3. Incinerator Information: Not applicable
Dwell Temperature: °F
Dwell Time: seconds
Incinerator Afterburner Temperature: °F

B. EMISSIONS UNIT CAPACITY INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate: 1,623		mmBtu/hr
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Requested Maximum Operating Schedule:		
	24 hours/day	7 days/week
	52 weeks/year	4,050 hours/year

6. Operating Capacity/Schedule Comment (limit to 200 characters): The given heat input rate of 1,623 mmBtu/hr is with use of natural gas. The heat input rate while firing No. 2 oil is 1,822 mmBtu/hr. Both heat rates are at 59° F and 60% relative humidity. The maximum heat input rate will vary depending on the turbine inlet conditions. The maximum allowable hours of operation in any 12-month period (MAXHROP) given in Permit 0310047-011-AV is 4,050 hours when firing natural and 1,260 hours when firing No. 2 fuel oil or the hours calculated pursuant to the following formula:

MAXHROP = 4050 – (3.215 * ACTHROPFO)

Where ACTHROPFO = actual hours of operation using fuel oil.

A copy of the heat input curves is also included in Attachment 10.

C. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)

List of Applicable Regulations

Emissions unit applicable regulations hereby incorporated by reference the Title V core list of applicable regulations that all Title V sources are presumptively subject.	
Federal	**40 CFR 60, Subpart GG**
Federal	**40 CFR 60, Subpart A**
Federal	**40 CFR Part 72**
Federal	**40 CFR Part 73**
Federal	**40 CFR Part 75**
Federal	**40 CFR Part 77**
Applicable regulations specified in KGS Title V Operating Permit No: 0310047-008-AV are hereby incorporated by reference.	

D. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? EU015	2. Emission Point Type Code: 1

3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point):

4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:

5. Discharge Type Code: V	6. Stack Height: 90 feet	7. Exit Diameter: 24 feet
8. Exit Temperature: 1116 °F	9. Actual Volumetric Flow Rate: 2,378,000 acfm	10. Water Vapor: %

11. Maximum Dry Standard Flow Rate: dscfm	12. Nonstack Emission Point Height: feet

13. Emission Point UTM Coordinates:

Zone: 17 East (km): 440,000 North (km): 3,359,100

14. Emission Point Comment (limit to 200 characters):

E. SEGMENT (PROCESS/FUEL) INFORMATION
(All Emissions Units)

Segment Description and Rate: Segment ___1__ of ___2__

1. Segment Description (Process/Fuel Type) (limit to 500 characters):
Natural gas used in Combustion Turbine No. 7

2. Source Classification Code (SCC): 20100201	3. SCC Units: Million Standard Cubic Feet Burned	
4. Maximum Hourly Rate: 1.591	5. Maximum Annual Rate: 6,444	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit: 1,020

10. Segment Comment (limit to 200 characters): Maximum annual rate based on allowable hours of operation firing natural gas of 4,050 hours per 12-month period. This limit is included in existing Title V Permit 0310047-011-AV.

Segment Description and Rate: Segment ___2__ of ___2__

1. Segment Description (Process/Fuel Type) (limit to 500 characters):
No. 2 fuel oil used in Combustion Turbine No. 7

2. Source Classification Code (SCC): 20100101	3. SCC Units: Thousand Gallons Burned	
4. Maximum Hourly Rate: 13.014	5. Maximum Annual Rate: 16,398	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.05%	8. Maximum % Ash:	9. Million Btu per SCC Unit: 140

10. Segment Comment (limit to 200 characters): Maximum annual rate based on allowable hours of operation firing No. 2 fuel oil of 1,260 hours per 12-month period. This limit is included in existing Title V Permit 0310047-011-AV.

F. EMISSIONS UNIT POLLUTANTS
(All Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
CO			**EL**
NO_X	**024**	**028 (when firing fuel oil)**	**EL**
PM			**EL**
PM_{10}			**EL**
SO_2			**EL**
VOC			**EL**

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: CO

2. Total Percent Efficiency of Control:

3. Potential Emissions: 48 lb/hour 97.20 tons/year

4. Synthetically Limited? [X]

5. Range of Estimated Fugitive Emissions:
[ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year

6. Emission Factor: 48 lb/hr
Reference: Permit 0310047-011-AV - Condition D.13

7. Emissions Method Code: 0

8. Calculation of Emissions (limit to 600 characters):
Emission factor from Permit 0310047-011-AV is 15 ppmvd and 48 lb/hr when firing natural gas.
Annual CO emissions (firing natural gas):
(48 lb/hr)(4,050 hr/yr)(ton/2,000 lb) = 97.2 ton/yr

9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): The given emissions limits are from Permit 0310047-011-AV. The worst case hourly CO emissions rate is with firing of No. 2 fuel oil. The worst case annual CO emissions rate is with firing of natural gas. The annual CO emissions rate with natural gas is based on a limit of 4,050 hours of operation on natural gas per 12-month period, as included in permit 0310047-011-AV.

Allowable Emissions Allowable Emissions ___1___ of ___2___

1. Basis for Allowable Emissions Code: ESCPSD

2. Future Effective Date of Allowable Emissions:

3. Requested Allowable Emissions and Units: 15 ppmvd for natural gas

4. Equivalent Allowable Emissions: 48 lb/hour 97.2 tons/year

5. Method of Compliance (limit to 60 characters):
   - Compliance testing annually (federal fiscal year).
   - Recordkeeping of natural gas operation.

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV. The allowable emissions rate applies when firing natural gas.

Emissions Unit Information Section ___4___ **of** ___4___

Pollutant Detail Information Page ___2___ **of** ___9___

Allowable Emissions Allowable Emissions ___2___ of ___2___

1. Basis for Allowable Emissions Code: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 20 ppmvd for fuel oil	4. Equivalent Allowable Emissions: 97 lb/hour 61.10 tons/year
5. Method of Compliance (limit to 60 characters): • Compliance testing annually (federal fiscal year). • Recordkeeping of fuel oil operation.	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV. The allowable emissions rate applies when firing natural gas. Equivalent allowable emissions are based on a limit of 4,050 hours of operation per 12-month period using natural gas.	

Emissions Unit Information Section ___4___ of ___4___

Pollutant Detail Information Page ___3___ of ___9___

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: NO_X	2. Total Percent Efficiency of Control:
3. Potential Emissions: 318 lb/hour 200 tons/year	4. Synthetically Limited? [X]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year	
6. Emission Factor: 318 lb/hr and 200 ton per 12-month period Reference: Permit 0310047-011-AV – Condition D.12	7. Emissions Method Code: 0

8. Calculation of Emissions (limit to 600 characters):
Emission limits from Permit 0310047-011-AV is 15 ppmvd at 15% O2 (on a 24-hour block average) and 99 lb/hr when firing natural gas.
Emission limits from Permit 0310047-011-AV is 42 ppmvd at 15% O2 (on a 24-hour block average) and 318 lb/hr when firing No. 2 fuel oil.
Permit 0310047-011-AV also limits total annual NO_x emissions to 200 tons or less on a 12 month rolling average basis.
Therefore, maximum NO_x emissions are 318 lb/hr and 200 tons/yr

9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): The given emissions limits are from Permit 0310047-011-AV.

Allowable Emissions Allowable Emissions ___1___ of ___2___

1. Basis for Allowable Emissions Code: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 15 ppmvd (at 15% O_2)based on a 24-hr block average for natural gas	4. Equivalent Allowable Emissions: 99 lb/hour 200 tons/year

5. Method of Compliance (limit to 60 characters):
- Stack testing
- CEMS
- Recordkeeping

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV.

Allowable Emissions Allowable Emissions ___2___ of ___2___

1. Basis for Allowable Emissions Code: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 42 ppmvd (at 15% O_2) for fuel oil	4. Equivalent Allowable Emissions: 318 lb/hour 200 tons/year

5 Method of Compliance (limit to 60 characters):
- Stack testing
- CEMS
- Recordkeeping

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):
The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV.

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: PM/PM_{10}	2. Total Percent Efficiency of Control:
3. Potential Emissions: 17 lb/hour 21.69 tons/year	4. Synthetically Limited? [X]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year	
6. Emission Factor: 17 lb/hr (No. 2 fuel oil) and 0.0066 lb/MMBtu (natural gas) Reference: Permit 0310047-011-AV – Condition D.8. and AP-42, Section 3.1	7. Emissions Method Code: 0 and 3

8. Calculation of Emissions (limit to 600 characters):
Emission limit from Permit 0310047-011-AV is 17 lb/hr when burning oil. This is the maximum hourly PM emissions rate.
Emission factor from AP-42, Section 3.1, Table 3.1-2a is 0.0066 lb/MMBtu when burning natural gas.
Annual PM emissions rate (burning natural gas):
(0.0066 lb/MMBtu)(1,623 MMBtu/hr)(4,050 hr/yr)(ton/2,000 lb) = 21.69 ton/yr

9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Worst case hourly emissions are when burning No. 2 fuel oil. Worst case annual emissions are when burning natural gas. Annual emission estimates are based on the allowable hours of operation with each fuel given in Permit 0310047-011-AV.

Allowable Emissions Allowable Emissions ___1___ of ___1___

1. Basis for Allowable Emissions Code: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: 17 lb/hour 10.71 tons/year

5. Method of Compliance (limit to 60 characters):
- Recordkeeping
- Fuel monitoring

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV. This allowable emissions rate applies only when burning fuel oil. The allowable emission rate includes non-condensable PM only. Equivalent allowable emissions are based on a limit of 1,260 hours of operation per 12-month period using fuel oil.

Emissions Unit Information Section ___4___ of ___4___

Pollutant Detail Information Page ___6___ of ___9___

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: SO_2	2. Total Percent Efficiency of Control:	
3. Potential Emissions: 98 lb/hour 61.74 tons/year		4. Synthetically Limited? [X]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year		
6. Emission Factor: 98 lb/hour Reference: Permit 0310047-011-AV – Condition D.5.		7. Emissions Method Code: 0

8. Calculation of Emissions (limit to 600 characters):
Emission limit from Permit 0310047-011-AV is 98 lb/hr when burning oil. This is the maximum hourly SO_2 emissions rate.
Annual SO_2 emissions:
(98 lb/hr)(1,260 hr/yr)(ton/2,000 lb) = 61.74 ton/yr

9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Worst case hourly and annual emissions are when burning No. 2 fuel oil. Annual emission estimate is based on the allowable hours of operation with each fuel given in Permit 0310047-011-AV.

Allowable Emissions Allowable Emissions ___1___ of ___2___

1. Basis for Allowable Emissions Code: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: <2 gr/100 scf (natural gas)	4. Equivalent Allowable Emissions: 9.7 lb/hour 19.64 tons/year

5. Method of Compliance (limit to 60 characters):
- Recordkeeping
- Fuel Monitoring

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV. This allowable emissions rate applies only when burning natural gas.

Allowable Emissions Allowable Emissions ___2___ of ___2___

1. Basis for Allowable Emissions Code: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 0.05 % sulfur fuel oil	4. Equivalent Allowable Emissions: 98 lb/hour 61.74 tons/year
5. Method of Compliance (limit to 60 characters): • Recordkeeping • Fuel Monitoring	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters): The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV.	

Emissions Unit Information Section ___4___ of ___4___

Pollutant Detail Information Page ___8___ of ___9___

G. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units - Emissions-Limited and Preconstruction Review Pollutants Only)

Potential/Fugitive Emissions

1. Pollutant Emitted: VOC	2. Total Percent Efficiency of Control:
3. Potential Emissions: 19 lb/hour 11.97 tons/year	4. Synthetically Limited? [ ]
5. Range of Estimated Fugitive Emissions: [ ] 1 [ ] 2 [ ] 3 ______ to ______ tons/year	
6. Emission Factor: 19 lb/hr Reference: Permit 0310047-011-AV - Condition D.14	7. Emissions Method Code: 0

8. Calculation of Emissions (limit to 600 characters):
Emission limit from Permit 0310047-011-AV is 19 lb/hr when burning oil. This is the maximum hourly VOC emissions rate.
Annual VOC emissions:
(19 lb/hr)(1,260 hr/yr)(ton/2,000 lb) = 11.97 ton/yr

9. Pollutant Potential/Fugitive Emissions Comment (limit to 200 characters): Worst case hourly and annual emissions are when burning No. 2 fuel oil. Annual emission estimate is based on the allowable hours of operation with each fuel given in Permit 0310047-011-AV.

Allowable Emissions Allowable Emissions ___1___ of ___2___

1. Basis for Allowable Emissions Code: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 1.4 ppmvd for natural gas	4. Equivalent Allowable Emissions: 2.9 lb/hour 5.87 tons/year

5. Method of Compliance (limit to 60 characters):
- Recordkeeping
- Stacktesting

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):
The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV. This allowable emissions rate applies only when burning natural gas.

Emissions Unit Information Section ___4___ **of** ___4___

Pollutant Detail Information Page ___9___ **of** ___9___

Allowable Emissions Allowable Emissions ___2___ of ___2___

1. Basis for Allowable Emissions Code: ESCPSD	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: 3.5 ppmvd for fuel oil	4. Equivalent Allowable Emissions: 19 lb/hour 11.97 tons/year

5. Method of Compliance (limit to 60 characters):

- Recordkeeping
- Stack test.

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):
The allowable emissions rate and compliance requirements are included in Permit 0310047-011-AV. This allowable emissions rate applies only when burning fuel oil.

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation ___1___ of ___2___

1. Visible Emissions Subtype: VE10	2. Basis for Allowable Opacity: [ ] Rule [X] Other
3. Requested Allowable Opacity: Normal Conditions: 10 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: • Compliance testing.	
5. Visible Emissions Comment (limit to 200 characters): The opacity limit and compliance determination requirements are included in existing Permit 0310047-011-AV. The 10 percent opacity standard only applies when burning natural gas.	

H. VISIBLE EMISSIONS INFORMATION
(Only Regulated Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation ___2___ of ___2___

1. Visible Emissions Subtype: VE20	2. Basis for Allowable Opacity: [ ] Rule [X] Other
3. Requested Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance: Compliance testing.	
5. Visible Emissions Comment (limit to 200 characters): The opacity limit and compliance determination requirements are included in existing Permit 0310047-011-AV. The 20 percent opacity standard applies when burning fuel oil. The applicant has the option of meeting a 10 percent opacity limit in lieu of Compliance testing.	

I. CONTINUOUS MONITOR INFORMATION
(Only Regulated Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor ___1__ of ___1__

1. Parameter Code: EM	2. Pollutant(s): NOX
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information: Manufacturer: TECO Model Number: 42 CHL	Serial Number: 42CHL-66199-351
5. Installation Date: July 31, 2000	6. Performance Specification Test Date: August 8, 2000
7. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System: Continuous Monitor ______ of ______

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement:	[ ] Rule [ ] Other
4. Monitor Information: Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters):	

J. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)

Supplemental Requirements

1. Process Flow Diagram
[X] Attached, Document ID: Attachment 3 [ ] Not Applicable [ ] Waiver Requested

2. Fuel Analysis or Specification
[X] Attached, Document ID Attachment 10 [ ] Not Applicable [ ] Waiver Requested

3. Detailed Description of Control Equipment
[X] Attached, Document ID Attachment 12 [ ] Not Applicable [ ] Waiver Requested

4. Description of Stack Sampling Facilities
[X] Attached, Document ID Attachment 13 [ ] Not Applicable [ ] Waiver Requested

5. Compliance Test Report
[X] Attached, Document ID: Attachment 16
[ ] Previously submitted, Date:_______________
[ ] Not Applicable

6. Procedures for Startup and Shutdown
[X] Attached, Document ID: Attachment 11 [ ] Not Applicable [ ] Waiver Requested

7. Operation and Maintenance Plan
[ ] Attached, Document ID:_:________ [X] Not Applicable [ ] Waiver Requested

8. Supplemental Information for Construction Permit Application
[ ] Attached, Document ID:________ [X] Not Applicable

9. Other Information Required by Rule or Statute
[ ] Attached, Document ID:________ [X] Not Applicable

10. Supplemental Requirements Comment:

Additional Supplemental Requirements for Title V Air Operation Permit Applications

11. Alternative Methods of Operation
[X] Attached, Document ID: Attachment 14 [X] Not Applicable

12. Alternative Modes of Operation (Emissions Trading)
[ ] Attached, Document ID:________ [X] Not Applicable

13. Identification of Additional Applicable Requirements
[ ] Attached, Document ID:________ [X] Not Applicable

14. Compliance Assurance Monitoring Plan
[ ] Attached, Document ID:________ [X] Not Applicable

15. Acid Rain Part Application (Hard-copy Required)

[X] Acid Rain Part – Phase II (Form No. 62-210.900(1)(a))
Attached, Document ID: Attachment 15

[ ] Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
Attached, Document ID:________

[ ] New Unit Exemption (Form No. 62-210.900(1)(a)2.)
Attached, Document ID:________

[ ] Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
Attached, Document ID:________

[ ] Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
Attached, Document ID:________

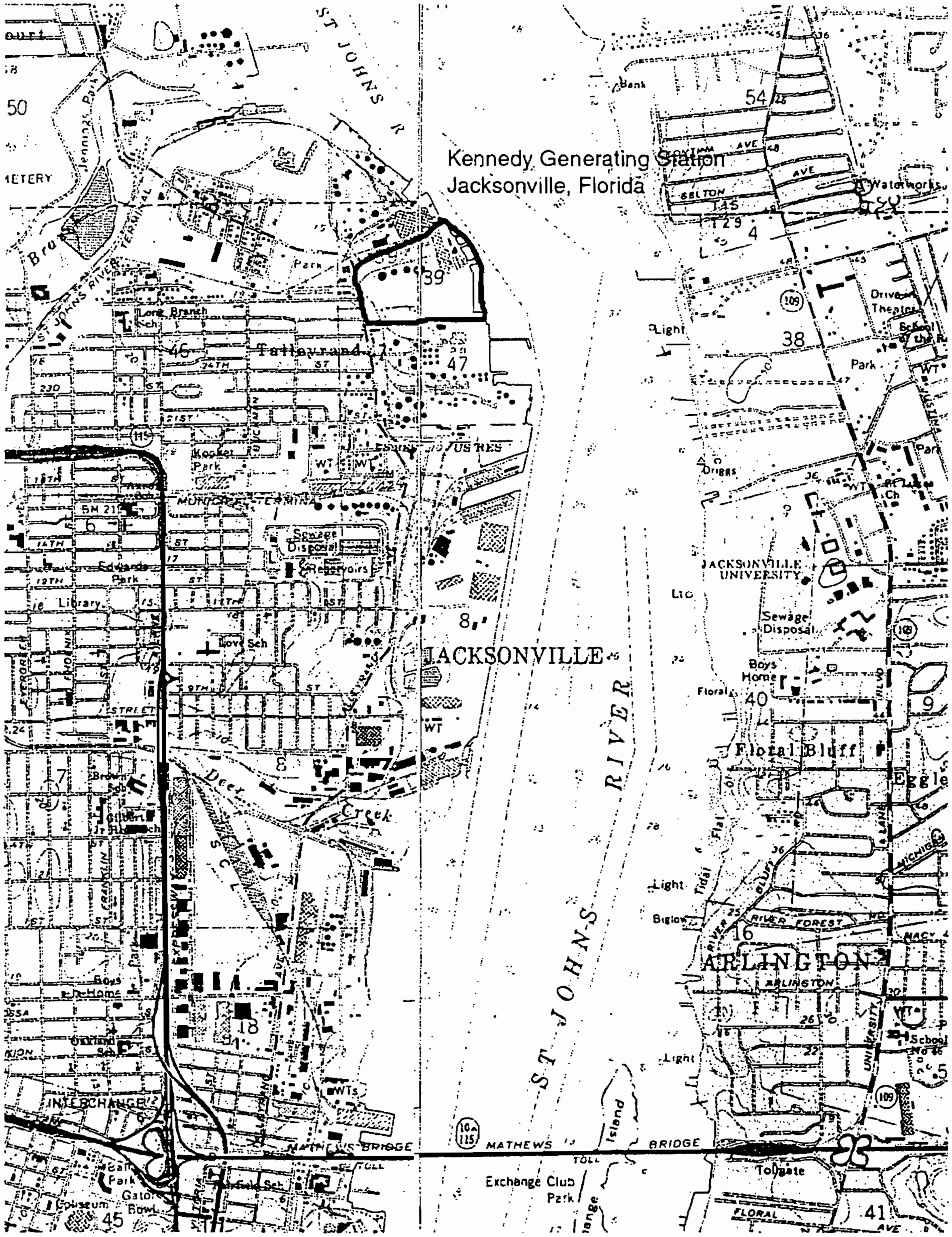
[ ] Phase NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
Attached, Document ID:________

[ ] Not Applicable

Attachment 1

Area map showing facility location

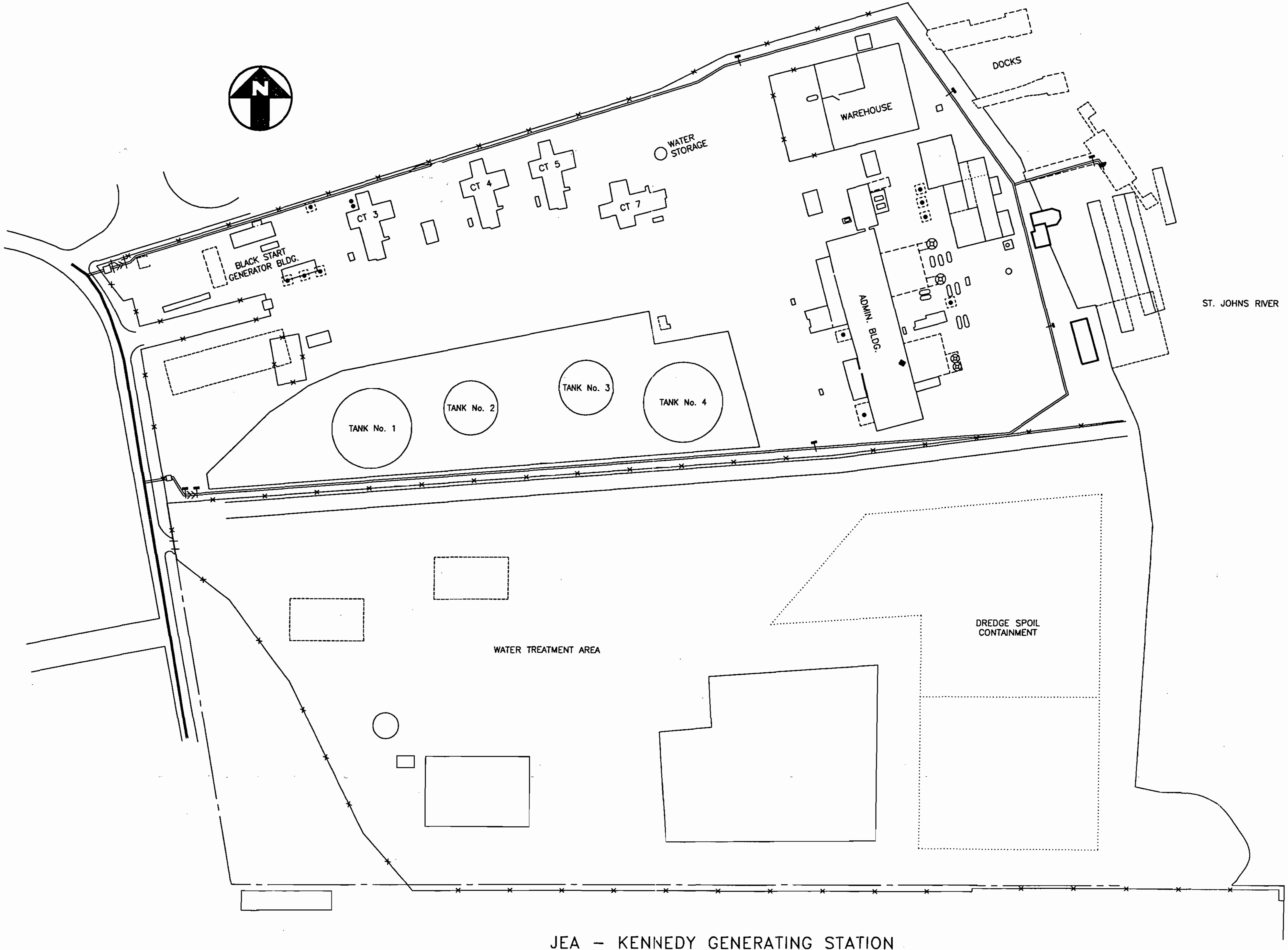
BEST AVAILABLE COPY



Location of JEA kennedy Generating Station

Attachment 2

Facility Plot Plan

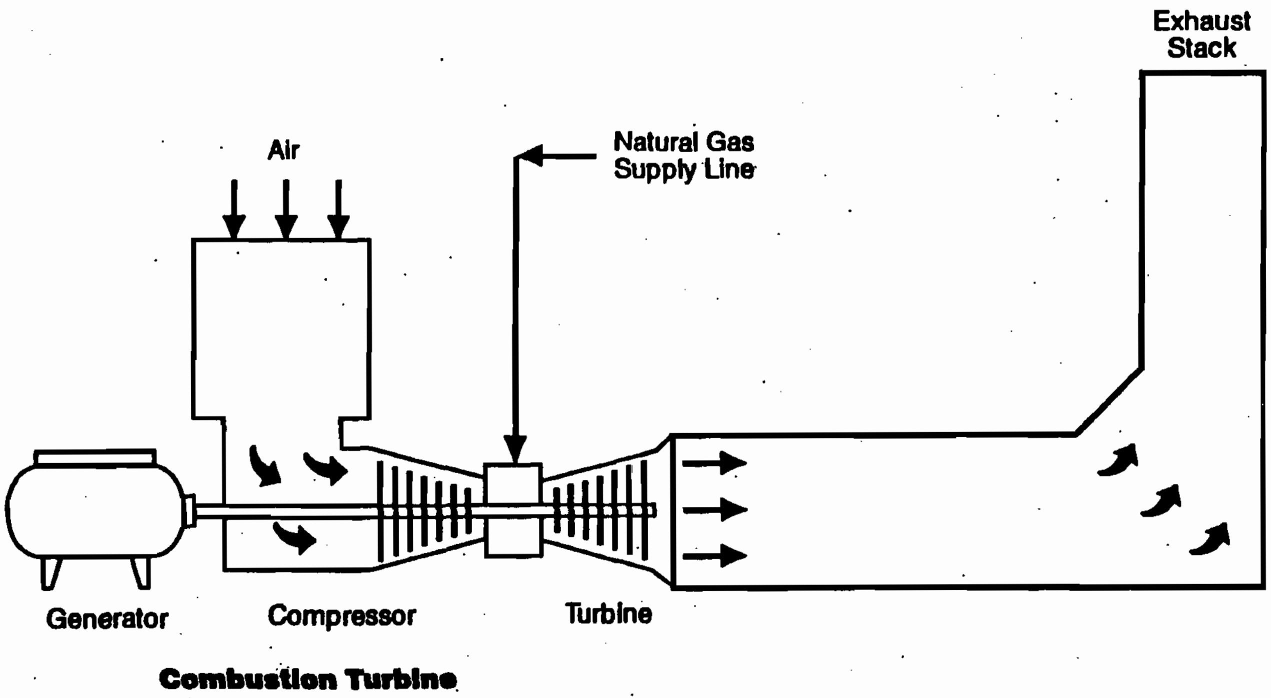


JEA – KENNEDY GENERATING STATION
JACKSONVILLE, FL
SCALE: 1 INCH = 100 FEET

Attachment 3

Process Flow Diagrams

Simple Cycle Combustion Turbine Process Flow Diagram



SIMPLE CYCLE COMBUSTION TURBINE

Attachment 4

Precautions to Prevent Emissions of Unconfined Particulate Matter

Precautions to Prevent Emissions of Unconfined Particulate Matter

The facility has negligible amounts of unconfined particulate matter as a result of the operation of the facility. Potential examples of particulate matter include:

- Fugitive dust from paved and unpaved roads;
- Sandblasting abrasive material from facility maintenance activities.

Several precautions were taken to prevent emissions of particulate matter in the original design of the facility. These include:

- Paving of roads, parking areas and equipment yards;
- Landscaping and planting of vegetation.

Operational measures are undertaken at the facility which also minimize particulate emissions, in accordance with Rule 62-296.320(4)(c) F.A.C.:

- Maintenance of paved areas as needed;
- Regular mowing of grass and care of vegetation;
- Limiting access to plant property by unnecessary vehicles.

Attachment 5

Fugitive Emissions Identification

Fugitive Emissions Identification

Other than emissions of unconfined particulate matter addressed in the earlier section, the only other known source of fugitive emissions are VOC emissions from miscellaneous painting activities and other maintenance activities and from fuel oil storage.

Attachment 6

List of Insignificant Activities and Unregulated Emission Units

List of Proposed Insignificant Activities

A. Storage Tanks.

1. JEA Tank #5	Magnesium Oxide	10,000 gallons
2. JEA Tank #6	Lube Oil - Units 9/10	9,400 gallons
3. JEA Tank #7	Lube Oil - Units 8/9	4,800 gallons
4. JEA Tank #8	Black Start Diesel	3,000 gallons
5. JEA Tank #9	Mineral Acid	5,000 gallons
6. JEA Tank #10	Caustic	5,000 gallons
7. JEA Tank #11	Hypochloride	15,228 gallons
8. JEA Tank #12	FeSO4	2,500 gallons
9. JEA Tanks #15	Sodium BiSulfite	2,500 gallons

B. Boilers Nos. 8, 9 and 10 (inactive emissions units).

1. Evaporation of on-site generated boiler non-hazardous cleaning chemicals (cirtosolv and ammonia). This activity occurs once every three to five years or longer.

C. Emergency Generator.

1. One at this site. The emergency generator has historically fired less than 10,000 gallons per year of diesel fuel. The emergency generator draws its fuel from a single diesel fuel oil storage tank that supports the auxiliary boiler (the fuel oil has a maximum fuel sulfur content limit of 0.5%, by weight).

D. Black-start Generators.

1. Two at this site. These generators have historically fired a total amount of less than 10,000 gallons per year. They draw their fuel from a single diesel storage tank (the fuel oil delivered is the same as that delivered for the emergency generator, i.e., with a maximum sulfur content of 0.5%, by weight).

List of Unregulated Emission Units/Activities

Emission Unit 010: Storage Tanks 1 and 4

Emission Unit 011: Storage Tanks 2 and 3

Emission Unit xxx: Storage Tank 13

Attachment 7

List of Equipment/Activities regulated under Title VI

List of Equipment/Activities Regulated Under Title VI

There are no pieces of equipment known to contain more than 50 lbs of a listed refrigerant. However, below is a list of equipment known to be on site which contain a listed refrigerant (R-22). The numbers are approximate as the exact numbers are subject to change based on units being replaced, retired or added:

- 10 central A/C units
- 20 Window units
- 10 refrigerators
- 2 ice machines
- 10 water coolers
- 1 sample cooler

In addition, there is one recycling (previously registered with the EPA in accordance with Title VI requirements, and applicable rules and regulations) machine for capturing refrigerant when any work is performed by on-site licensed personnel, although the majority of refrigerant work is currently performed by licensed contractors. This is subject to change in the future.

Attachment 8

Compliance Report and Plan

Compliance Report and Plan

At the time of the filing of this application, all units are in compliance with applicable rules and regulations.

If new regulatory requirements become applicable in the future, or if any non-compliance items are discovered after submittal of this application, the necessary steps will be taken to ensure compliance in a timely manner. This is in accordance with company policy of maintaining continuous compliance with all applicable rules and regulations.

Attachment 9

Compliance Certification

Compliance Certification

I, the undersigned, am the responsible official as defined in Chapter 62-210.200, F.A.C., of the Title V source for which the compliance report in Attachment 8 is being submitted. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made and data contained in this report are true, accurate, and complete.

Signature

July 1, 2002

Date

Attachment 10

Fuel Analyses or Specification

Heat Input Curves

Combustion turbine 7 is permitted to burn natural gas and No.2 fuel oil. Combustion turbine Nos. 3, 4 and 5 are permitted to burn No.2 fuel oil only. Attached is a fuel analyses for pipeline natural gas and a fuel analysis for a No.2 fuel oil used at the Kennedy Generating Station.

INSPECTORATE

CERTIFICATE OF ANALYSIS

JOB NO.	TPA01-10649
LAB NO.	L010918247

VESSEL	MRL 106 KGS	REPORT DATE	09/18/01
TERMINAL/PORT	JEA/~~NORTHSIDE~~, JACKSONVILLE, FL		
SAMPLE FROM	SHORE TANK ~~#3~~ ~~#17~~ #3	DATE SAMPLED	09/18/01
SAMPLE SUBMITTED BY	INSPECTORATE AMERICA CORP. (UNLESS SPECIFIED) **		
ANALYSIS PERFORMED BY	INSPECTORATE AMERICA CORP. (UNLESS SPECIFIED) **		
CLIENT(S) REF.	N/A		

TEST	METHOD	RESULTS
GRAVITY, API @ 60 F	D 287	35.4 ✓
SULFUR, WT%	D 4294	0.0384 ✓
ASH, WT%	D 482	<0.01 ✓
HEAT OF COMBUSTION, BTU/GAL	D 240	138886 ✓

Q-ANAL
REV #3

JOHN E. MILLER
INSPECTORATE AMERICA

FGT

Last Updated 2/15/02 7:55

Station Name	Total Sulfur Previous Day Avg ppm 02/13/02	Total Sulfur Previous Day Avg Grains/hcf 02/13/02
Perry 36" Stream #1	0.6	0.037
Perry 30" Stream #2	0.8	0.050
Perry 24" Stream #3	0.8	0.050
* Brooker 24" Stream	2.3	0.146

Florida Gas makes no warranty or representation whatsoever as to the accuracy of the information provided.
This information is provided on a best efforts basis and is an estimate.
The information is not used for billing purposes.
Florida Gas is not responsible for any reliance on this information by any party.

Stream History

Gas Day	Index	Perry 36" Stream #1 15SA36PSUL.A Avg ppm	Perry 36" Stream #1 Avg Grains/hcf	Perry 30" Stream #2 15SA30PSUL.A Avg ppm	Perry 30" Stream #2 Avg Grains/hcf	Perry 24" Stream #3 15SA24PSUL.A Avg ppm	Perry 24" Stream #3 Avg Grains/hcf	Brooker 24" Stream BRO124PSUL.A Avg ppm	* Brooker 24" Stream Avg Grains/hcf
02/12/02	33	0.752	0.047	0.932	0.058	0.912	0.057	2.390	0.149
02/11/02	32	0.480	0.030	0.856	0.053	0.865	0.054	2.326	0.145
02/10/02	31	0.521	0.033	0.901	0.056	0.897	0.056	2.934	0.183
02/09/02	30	0.629	0.039	0.913	0.057	0.904	0.056	2.655	0.166
02/08/02	29	0.678	0.042	0.713	0.045	0.729	0.046	2.515	0.157
02/07/02	28	0.527	0.033	0.572	0.036	0.589	0.037	2.127	0.133
02/06/02	27	0.541	0.034	0.751	0.047	0.768	0.048	2.120	0.132
02/05/02	26	0.774	0.048	0.899	0.056	0.891	0.056	2.605	0.163
02/04/02	25	0.904	0.057	0.901	0.056	0.895	0.056	2.110	0.132
02/03/02	24	0.788	0.049	0.685	0.043	0.645	0.040	2.396	0.150
02/02/02	23	1.213	0.076	1.226	0.077	1.126	0.070	1.320	0.082
02/01/02	22	0.858	0.054	1.061	0.066	1.038	0.065	3.166	0.198
01/31/02	21	1.046	0.065	0.934	0.058	0.894	0.056	3.149	0.197
01/30/02	20	0.989	0.062	0.987	0.062	0.963	0.060	3.414	0.213
01/29/02	19	1.061	0.066	1.119	0.070	1.090	0.068	3.421	0.214
01/28/02	18	0.900	0.056	1.167	0.073	1.149	0.072	3.476	0.217
01/27/02	17	1.324	0.083	1.357	0.085	1.382	0.086	3.976	0.248
01/26/02	16	1.570	0.098	1.740	0.109	1.516	0.095	3.629	0.227
01/25/02	15	4.251	0.266	4.208	0.263	3.921	0.245	3.629	0.227
01/24/02	14	5.229	0.327	5.332	0.333	4.642	0.290	3.834	0.240
01/23/02	13	4.660	0.291	5.430	0.339	5.833	0.365	4.391	0.274
01/22/02	12	6.628	0.414	6.672	0.417	6.795	0.425	4.282	0.268

KENNEDY STATION COMBUSTION TURBINES
BASE LOAD MW vs TEMPERATURE

#	AMBIENT TEMP *F	GROSS MW (X)	HEAT CONSUMED mmBTU/HR	AMBIENT TEMP *F	GROSS MW (X)	HEAT CONSUMED mmBTU/HR
1	100	47.18	712	60	58.71	831
2	99	47.47	715	59	59.00	834
3	98	47.76	718	58	59.29	837
4	97	48.04	721	57	59.58	840
5	96	48.33	724	56	59.87	843
6	95	48.62	727	55	60.15	846
7	94	48.91	729	54	60.44	849
8	93	49.20	732	53	60.73	853
9	92	49.49	735	52	61.02	856
10	91	49.77	738	51	61.31	859
11	90	50.06	741	50	61.60	862
12	89	50.35	744	49	61.88	865
13	88	50.64	747	48	62.17	868
14	87	50.93	750	47	62.46	871
15	86	51.22	753	46	62.75	875
16	85	51.50	756	45	63.04	878
17	84	51.79	758	44	63.33	881
18	83	52.08	761	43	63.61	884
19	82	52.37	764	42	63.90	887
20	81	52.66	767	41	64.19	891
21	80	52.95	770	40	64.48	894
22	79	53.23	773	39	64.77	897
23	78	53.52	776	38	65.06	900
24	77	53.81	779	37	65.34	904
25	76	54.10	782	36	65.63	907
26	75	54.39	785	35	65.92	910
27	74	54.68	788	34	66.21	914
28	73	54.96	791	33	66.50	917
29	72	55.25	794	32	66.79	920
30	71	55.54	797	31	67.07	923
31	70	55.83	800	30	67.36	927
32	69	56.12	803	29	67.65	930
33	68	56.41	806	28	67.94	933
34	67	56.69	809	27	68.23	937
35	66	56.98	812	26	68.52	940
36	65	57.27	815	25	68.80	943
37	64	57.56	818	24	69.09	947
38	63	57.85	821	23	69.38	950
39	62	58.14	825	22	69.67	954
40	61	58.42	828	21	69.96	957
41	60	58.71	831	20	70.25	960

The capability during fogger use is primarily dependent on the relative humidity. Use the "wet bulb" temperature as the "ambient temperature" to determine the capability; limited to either 34*F below ambient or 50*F wet bulb temperature (whichever is higher). For example: at 90 degrees ambient and 80 degrees wet bulb (65% RH), the capability would increase from 50.06MW to 52.95MW.

KCT 7 OIL
BASE LOAD MW vs TEMPERATURE

#	AMBIENT TEMP *F	BASE LOAD GROSS MW (X)	BASE LOAD HEAT CONSUMED mmBTU/HR	MINIMUM LOAD GROSS MW (X)
1	100	161.91	1,765	40.45
2	99	162.35	1,769	40.56
3	98	162.79	1,772	40.67
4	97	163.23	1,776	40.78
5	96	163.67	1,780	40.89
6	95	164.11	1,784	41.00
7	94	164.55	1,787	41.11
8	93	164.99	1,791	41.22
9	92	165.43	1,795	41.33
10	91	165.86	1,799	41.44
11	90	166.30	1,802	41.55
12	89	166.74	1,806	41.67
13	88	167.18	1,810	41.78
14	87	167.62	1,814	41.89
15	86	168.06	1,817	42.00
16	85	168.50	1,821	42.11
17	84	168.94	1,825	42.22
18	83	169.38	1,829	42.33
19	82	169.82	1,832	42.44
20	81	170.26	1,836	42.55
21	80	170.69	1,840	42.66
22	79	171.13	1,844	42.77
23	78	171.57	1,848	42.88
24	77	172.01	1,851	42.99
25	76	172.45	1,855	43.10
26	75	172.89	1,859	43.21
27	74	173.33	1,863	43.32
28	73	173.77	1,867	43.43
29	72	174.21	1,870	43.54
30	71	174.65	1,874	43.65
31	70	175.09	1,878	43.76
32	69	175.52	1,882	43.87
33	68	175.96	1,886	43.98
34	67	176.40	1,890	44.10
35	66	176.84	1,893	44.21
36	65	177.28	1,897	44.32
37	64	177.72	1,901	44.43
38	63	178.16	1,905	44.54
39	62	178.60	1,909	44.65
40	61	179.04	1,913	44.76
41	60	179.48	1,916	44.87
41	60	179.48	1,765	40.45
42	59	179.92	1,769	40.56
43	58	180.36	1,772	40.67
44	57	180.79	1,776	40.78
45	56	181.23	1,780	40.89
46	55	181.67	1,784	41.00
47	54	182.11	1,787	41.11
48	53	182.55	1,791	41.22
49	52	182.99	1,795	41.33
50	51	183.43	1,799	41.44
51	50	183.87	1,802	41.55
52	49	184.31	1,806	41.67
53	48	184.75	1,810	41.78
54	47	185.19	1,814	41.89
55	46	185.62	1,817	42.00
56	45	186.06	1,821	42.11
57	44	186.50	1,825	42.22
58	43	186.94	1,829	42.33
59	42	187.38	1,832	42.44
60	41	187.82	1,836	42.55
61	40	188.26	1,840	42.66
62	39	188.70	1,844	42.77
63	38	189.14	1,848	42.88
64	37	189.58	1,851	42.99
65	36	190.02	1,855	43.10
66	35	190.45	1,859	43.21
67	34	190.89	1,863	43.32
68	33	191.33	1,867	43.43
69	32	191.77	1,870	43.54
70	31	192.21	1,874	43.65
71	30	192.65	1,878	43.76
72	29	193.09	1,882	43.87
73	28	193.53	1,886	43.98
74	27	193.97	1,890	44.10
75	26	194.41	1,893	44.21
76	25	194.85	1,897	44.32
77	24	195.29	1,901	44.43
78	23	195.72	1,905	44.54
79	22	196.16	1,909	44.65
80	21	196.60	1,913	44.76
81	20	197.04	1,916	44.87

KCT 7 GAS

BASE LOAD MW vs TEMPERATURE

#	AMBIENT TEMP *F	BASE LOAD GROSS MW (X)	BASE LOAD HEAT CONSUMED mmBTU/HR	MINIMUM LOAD GROSS MW (X)
1	100	151.56	1,677	37.88
2	99	152.04	1,681	38.00
3	98	152.52	1,685	38.12
4	97	153.01	1,690	38.24
5	96	153.49	1,694	38.36
6	95	153.97	1,698	38.48
7	94	154.46	1,702	38.61
8	93	154.94	1,706	38.73
9	92	155.43	1,710	38.85
10	91	155.91	1,714	38.97
11	90	156.39	1,718	39.09
12	89	156.88	1,722	39.21
13	88	157.36	1,726	39.33
14	87	157.85	1,730	39.45
15	86	158.33	1,734	39.57
16	85	158.81	1,739	39.69
17	84	159.30	1,743	39.82
18	83	159.78	1,747	39.94
19	82	160.26	1,751	40.06
20	81	160.75	1,755	40.18
21	80	161.23	1,759	40.30
22	79	161.72	1,763	40.42
23	78	162.20	1,767	40.54
24	77	162.68	1,771	40.66
25	76	163.17	1,776	40.78
26	75	163.65	1,780	40.90
27	74	164.14	1,784	41.03
28	73	164.62	1,788	41.15
29	72	165.10	1,792	41.27
30	71	165.59	1,796	41.39
31	70	166.07	1,800	41.51
32	69	166.55	1,804	41.63
33	68	167.04	1,809	41.75
34	67	167.52	1,813	41.87
35	66	168.01	1,817	41.99
36	65	168.49	1,821	42.11
37	64	168.97	1,825	42.24
38	63	169.46	1,829	42.36
39	62	169.94	1,834	42.48
40	61	170.43	1,838	42.60
41	60	170.91	1,842	42.72
41	60	170.91	1,677	37.88
42	59	171.39	1,681	38.00
43	58	171.88	1,685	38.12
44	57	172.36	1,690	38.24
45	56	172.84	1,694	38.36
46	55	173.33	1,698	38.48
47	54	173.81	1,702	38.61
48	53	174.30	1,706	38.73
49	52	174.78	1,710	38.85
50	51	175.26	1,714	38.97
51	50	175.75	1,718	39.09
52	49	176.23	1,722	39.21
53	48	176.72	1,726	39.33
54	47	177.20	1,730	39.45
55	46	177.68	1,734	39.57
56	45	178.17	1,739	39.69
57	44	178.65	1,743	39.82
58	43	179.14	1,747	39.94
59	42	179.62	1,751	40.06
60	41	180.10	1,755	40.18
61	40	180.59	1,759	40.30
62	39	181.07	1,763	40.42
63	38	181.55	1,767	40.54
64	37	182.04	1,771	40.66
65	36	182.52	1,776	40.78
66	35	183.01	1,780	40.90
67	34	183.49	1,784	41.03
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71	30	185.43	1,800	41.51
72	29	185.91	1,804	41.63
73	28	186.39	1,809	41.75
74	27	186.88	1,813	41.87
75	26	187.36	1,817	41.99
76	25	187.84	1,821	42.11
77	24	188.33	1,825	42.24
78	23	188.81	1,829	42.36
79	22	189.30	1,834	42.48
80	21	189.78	1,838	42.60
81	20	190.26	1,842	42.72

Attachment 11

Procedures for Startup and Shutdown

Startup and shutdown procedures will be completed in accordance with standard operating procedures. Excess emissions resulting from startup and shutdown are permitted in Permit No. 0310047-008-AV.

Attachment 12

Detailed Description of Control Equipment

The new simple cycle combustion turbine generator's (E/V 015) pollution control equipment consists of dry low NOx burners (DLN-2.6 combustors) and water injection to control emissions of NOx during natural gas and fuel oil firing, respectively. A detailed description of the control equipment is summarized in the attached Technical Evaluation and Preliminary Determination document.

TECHNICAL EVALUATION

AND

PRELIMINARY DETERMINATION

Jacksonville Electric Authority

Kennedy Generating Station
170 Megawatt Simple Cycle Peaking Unit

Duval County

DEP File No. 0310047-002-AC

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

January 29, 1999

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. APPLICATION INFORMATION

1.1 Applicant Name and Address

Jacksonville Electric Authority (JEA)
21 West Church Street
Jacksonville, Florida 32202-3139

Authorized Representative: Walter P. Bussels, Managing Director & CEO

1.2 Reviewing and Process Schedule

10-30-98:	Date of Receipt of Application
11-25-98:	DEP completeness request
12-23-98:	Application deemed complete.
01-26-99:	Issued Intent

2. FACILITY INFORMATION

2.1 Facility Location

Refer to Figure 1. The JEA Kennedy Generating Station is located at 4215 Talleyrand Ave in Jacksonville, Duval County. The UTM coordinates of this facility are Zone 17; 440.0 km E; 3,591.0 km N.

2.2 Standard Industrial Classification Codes (SIC)

Industry Group No.	49	Electric, Gas, and Sanitary Services
Industry No.	4911	Electric Services

2.3 Facility Category

The JEA Kennedy Generating Station produces electric power from three natural gas and fuel oil-fired steam units with a combined generating capacity of 250 megawatts (MW), a 21 MW natural gas and fuel oil-fired auxiliary boiler, and three No. 2 distillate fuel oil-fired simple cycle combustion turbines-electrical generator with a combined capacity of approximately 170 MW.

This facility is within an industry included in the list of the 28 Major Facility Categories per Table 62-212.400-1, F.A.C. Because emissions are greater than 100 TPY for at least one criteria pollutant, the facility is also a major facility with respect to Rule 62-212.400, Prevention of Significant Deterioration (PSD). Per Table 62-212.400-2, modifications at the facility resulting in emissions increases greater than 40 TPY of NO_X or SO_2, 25/15 TPY of PM/PM_{10}, or 3 TPY of fluorides (F) require review per the PSD rules and a determination for Best Available Control Technology (BACT) per Rule 62-212.400, F.A.C. The present modification results in net emissions decreases or less-than-significant increases in PSD pollutants. Therefore the modification is not subject to PSD.

The facility is classified as a Major or Title V Source of air pollution because emissions of at least one regulated air pollutant, such as particulate matter (PM/PM_{10}), sulfur dioxide (SO_2), nitrogen oxides (NO_X), carbon monoxide (CO), or volatile organic compounds (VOC) exceeds 100 TPY.

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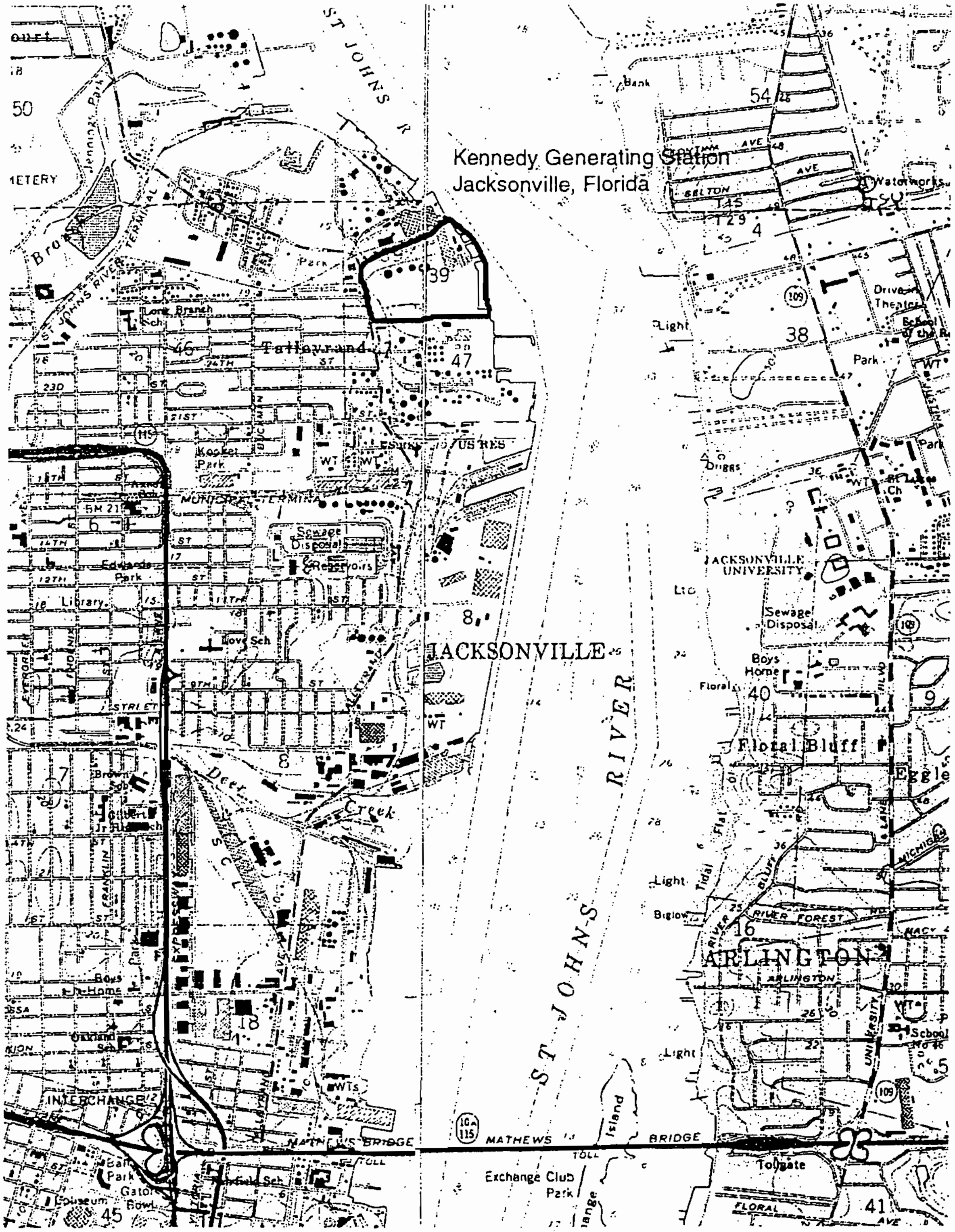


Figure 1 - Location of JEA kennedy Generating Station

3. PROJECT DESCRIPTION

This permit addresses the following emissions unit:

EMISSION UNIT NO.	SYSTEM	EMISSION UNIT DESCRIPTION
00X	Power Generation	One 170 MW Combustion Turbine-Electrical Generator

JEA proposes to install a nominal 170 MW combustion turbine-electrical generator. The proposed unit is a General Electric PG 7241 FA combustion turbine that will burn natural gas and No. 2 distillate fuel oil. It will operate in simple cycle mode and intermittent duty. This turbine will replace an existing 150 MW natural gas and fuel oil-fired boiler identified by JEA as KE10 (ARMS Emission Unit 009) at the Kennedy Generating Station in Duval County. The project also includes a 90-foot new stack .

The prime mover and source of air polution will be a General Electric PG7241FA (7FA) combustion turbine-electrical generator. It will be equipped with Dry Low NO_X (DLN-2.6) combustors tuned to control NO_X emissions to 15 ppmvd at 15% O_2 between 50 and 100% of full load conditions durinng normal operations. Both natural gas and maximum 0.05 % sulfur fuel oil will be used in the unit.

A photgraph of a GE 7001FA (a predecessor of the PG 7241FA) is shown in Figure 2. An internal view is shown in Figure 3.

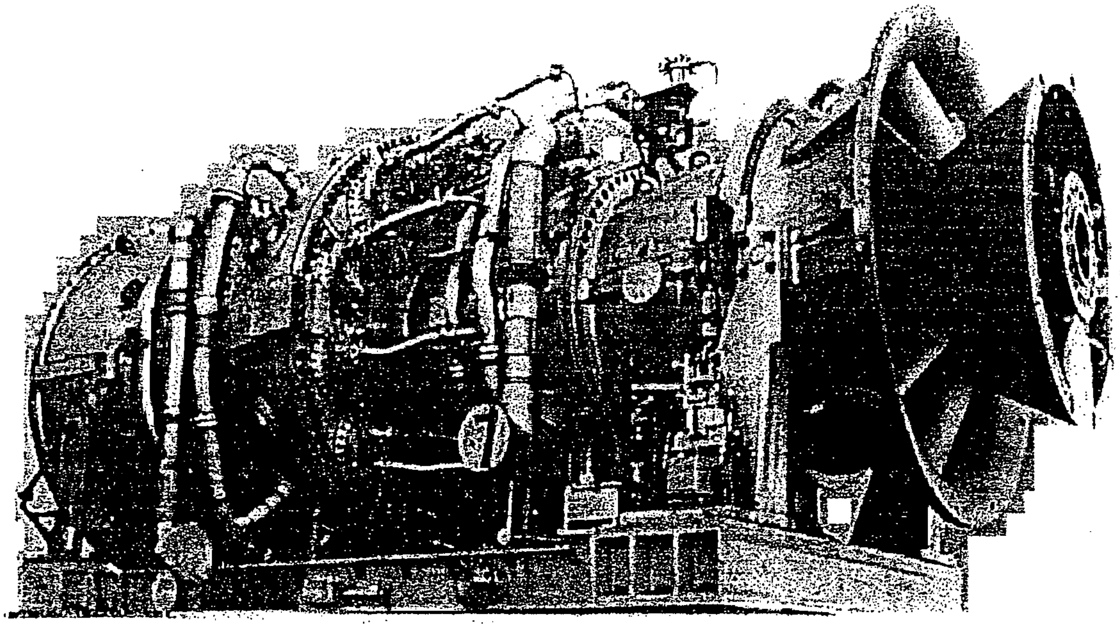


Figure 2 - Photograph of General Electric MS 7001FA Combustion Turbine

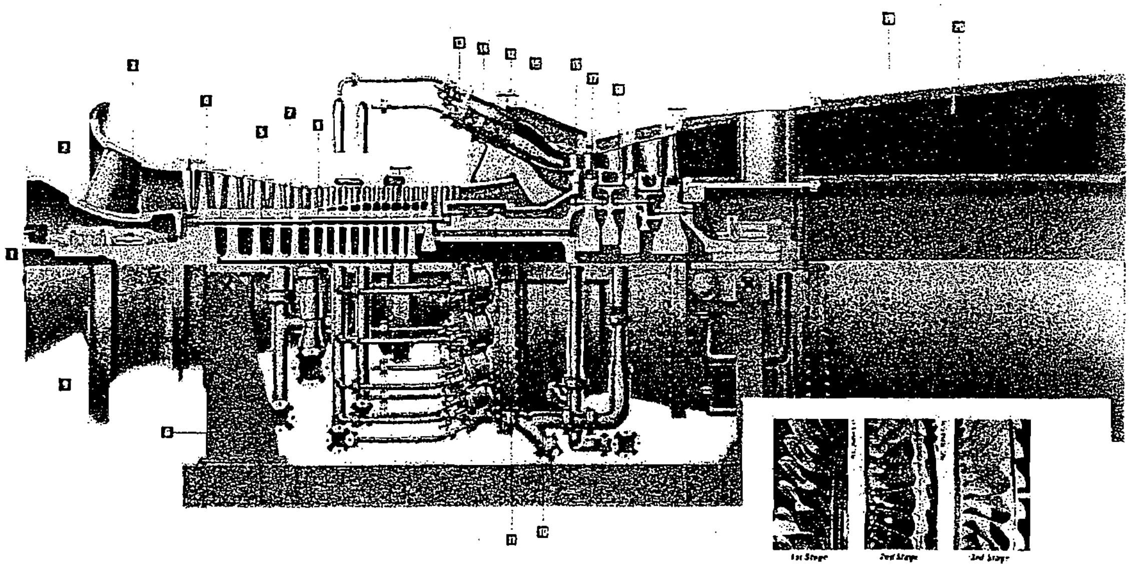


Figure 3 - Internal View of General Electric MS 7001FA Combustion Turbine

Hours of operation will be limited to 4050 hours per year on natural gas or 1260 hours per year on fuel oil. An algorithm is proposed by JEA to operate varying combinations of hours on natural gas and or fuel oil such that the maximum emissions do not exceed those related with exclusive firing of either fuel.

This combustion turbine will have a heat input of 1,623 million Btu per hour (natural gas) and 1822 million Btu per hour (fuel oil), *lower* heating value (MMBtu/hr, LHV) referenced to 59°F and 60 % relative humidity. At those heat input rates and conditions, the gross power output from the electrical generator is 173 MW for gas and 182 MW for oil. Depending on compressor inlet conditions, full load power capacity will range from approximately 150 to 187 MW while burning gas and 160 to 191 while burning fuel oil.

Emission decreases will occur for carbon monoxide (CO), sulfur dioxide (SO_2), sulfuric acid mist ($H_2SO_{4\ mist}$ or SAM), particulate matter (PM/PM_{10}), volatile organic compounds (VOC) and nitrogen oxides (NO_X). Net emission changes of these pollutants will be less than the significant emission levels per Table 62-212.400-2, F.A.C. Therefore review for the Prevention of Significant Deterioration (PSD) is not required.

According to the application, this unit will emit approximately 200 tons per year (TPY) of NO_X, 97 TPY of CO, 18 TPY of PM/PM_{10}, 62 TPY of SO_2, 6 TPY of VOC, and 6 TPY of SAM.

4. PROCESS DESCRIPTION

Much of the following discussion is from a 1993 EPA document on Alternative Control Techniques for NO_X Emissions from Stationary Gas turbines.[1] Project specific information is interspersed where appropriate.

A gas turbine is an internal combustion engine that operates with rotary rather than reciprocating motion. Ambient air is drawn into the 18-stage compressor of the GE 7FA where it is compressed by a pressure ratio of about 15 times atmospheric pressure. The compressed air is then directed to the combustor section, where fuel is introduced. ignited, and burned. The combustion section consists of 14 separate can-annular combustors.

Flame temperatures in a typical combustor section can reach 3600 degrees Fahrenheit (°F). Units such as the 7FA operate at lower flame temperatures which minimize NO_X formation. The hot combustion gases are then diluted with additional cool air and directed to the turbine section at temperatures of approximately 2400 °F. Energy is recovered in the turbine section in the form of shaft horsepower, of which typically more than 50 percent is required to drive the internal compressor section. The balance of recovered shaft energy is available to drive the external load unit such as an electrical generator.

In the JEA project, the unit will operate primarily as a peaking unit in the simple cycle mode. Cycle efficiency, defined as a percentage of useful shaft energy output to fuel energy input, is approximately 35 percent for F-Class combustion turbines in the simple cycle mode. In addition to shaft energy output, 1 to 2 percent of fuel input energy can be attributed to mechanical losses. The balance is exhausted from the turbine in the form of heat. Figure 4 is a process flow diagram for this simple cycle operation.

In combined cycle operation, the gas turbine drives an electric generator while the exhausted gases are used to raise steam in a heat recovery steam generator (HRSG). In combined cycle mode, the thermal efficiency of the 7FA can exceed 56 percent.

Additional process information related to the combustor design, and control measures to minimize NO_X formation are given in the control technology section below.

5. RULE APPLICABILITY

The proposed project is subject to preconstruction review requirements under the provisions of Chapter 403, Florida Statutes, and Chapters 62-4, 62-204, 62-210, 62-212, 62-214, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.).

This facility is located in Duval County, an area designated as unclassifiable for sulfur dioxide, as an air quality maintenance area for ozone and particulate matter in accordance with Rule 62-204.360, F.A.C. The proposed project is not subject to review under Rule 62-212.400., F.A.C., Prevention of Significant Deterioration (PSD), because the net emission increases for CO, VOC and NO_X do not exceed the significant emission rates given in Chapter 62-212, Table 62-212.400-2, F.A.C.

The net emissions increase/decrease for all PSD pollutants as a result of this modification are calculated below:

CONTEMPORANEOUS CREDITABLE CHANGES (TPY)

Pollutants	Past Emissions (Boiler KE10)	Future Emissions (170 MW CT)	Increase (decrease)	PSD Significance	PSD Review?
PM/PM_{10}	21.7	18.2	(3.5)	25/15	No
SAM	11.9	6.3	(5.5)	7	No
SO_2	266	62	(204)	40	No
NO_X	161.5	200.5	39	40	No
VOC	1.6	5.7	4.1	40	No
CO	14.5	97.2	82.7	100	No

This evaluation consists of a review of the control technology for PM/PM_{10}, VOC, CO, SO_2, and NO_X to insure that it is sufficient to restrict future emissions to levels lower than past emissions or net increases in emissions to levels less than the significant emission rates as described above. An analysis of the air quality impact from proposed project is required to insure that there are no exceedances of the National or State Ambient Air Quality Standards.

The emission unit affected by this permit shall comply with all applicable provisions of the Florida Administrative Code (including applicable portions of the Code of Federal Regulations incorporated therein) and, specifically, the following Chapters and Rules:

5.1 State Regulations

Chapter 62-4	Permits.
Rule 62-204.220	Ambient Air Quality Protection
Rule 62-204.240	Ambient Air Quality Standards
Rule 62-204.800	Federal Regulations Adopted by Reference
Rule 62-210.300	Permits Required
Rule 62-210.350	Public Notice and Comments
Rule 62-210.370	Reports
Rule 62-210.550	Stack Height Policy
Rule 62-210.650	Circumvention
Rule 62-210.700	Excess Emissions
Rule 62-210.900	Forms and Instructions
Rule 62-212.300	General Preconstruction Review Requirements
Chapter 62-213	Operation Permits for Major Sources of Air Pollution
Chapter 62-214	Requirements For Sources Subject To The Federal Acid Rain Program
Rule 62-296.320	General Pollutant Emission Limiting Standards
Rule 62-297.310	General Test Requirements
Rule 62-297.401	Compliance Test Methods
Rule 62-297.520	EPA Continuous Monitor Performance Specifications

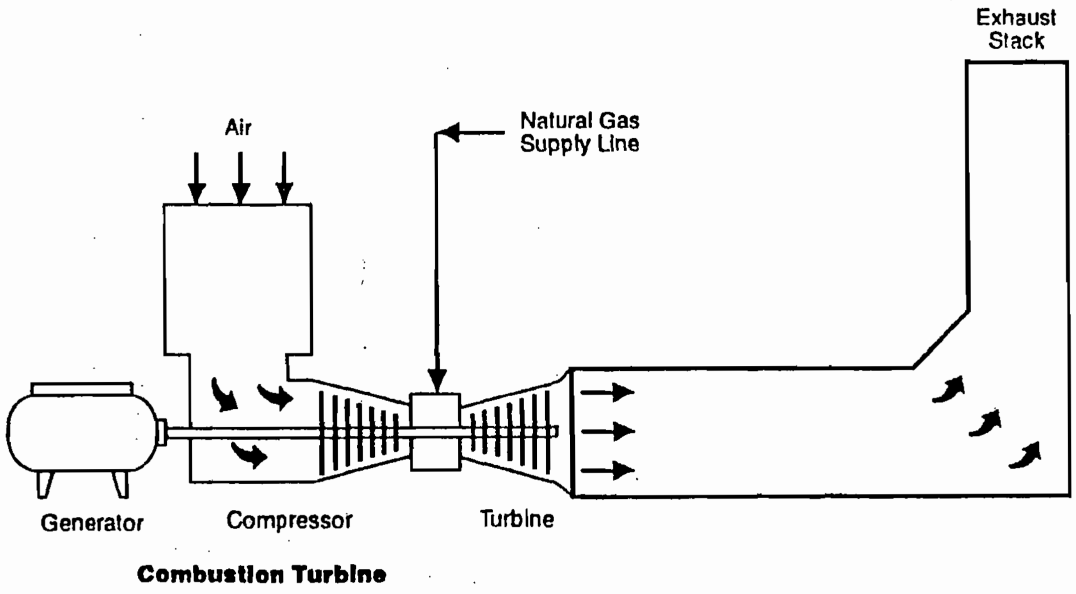


Figure 4 - Simple Cycle Combustion Turbine Process Flow Diagram

5.2 Federal Rules

40 CFR 60	NSPS Subparts GG
40 CFR 60	Applicable sections of Subpart A, General Requirements
40 CFR 72	Acid Rain Permits (applicable sections)
40 CFR 73	Allowances (applicable sections)
40 CFR 75	Monitoring (applicable sections including applicable appendices)
40 CFR 77	Acid Rain Program-Excess Emissions (future applicable requirements)

6. AIR POLLUTION CONTROL TECHNOLOGY

6.1 Applicant Control Technology Proposal

POLLUTANT	CONTROL TECHNOLOGY	PROPOSED LIMIT
PM/PM_{10} (Non-Condensables)	Combustion Controls	9 lb/hr (NG)* 17 lb/hr (F.O.)*
Volatile Organic Compounds	As Above	1.4 ppm (NG) 3.5 ppm (F.O.)
Carbon Monoxide	As Above	15 ppm (NG) 20 ppm (F.O.)
Sulfur Dioxide	As Above	2 gr/100 scf (NG) 0.05% Sulfur Fuel Oil
H_2SO_4	As Above	10 lb/hr
Opacity	As Above	5 (NG) 20 (F.O.)
Nitrogen Oxides	Dry Low NO_X - Natural Gas Wet Injection - Fuel Oil	15 ppm @ 15% O_2 (NG) 42 ppm @ 15% O_2 (F.O.)

6.2 Standards of Performance for New Stationary Sources

The minimum project control technology basis is 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines (NSPS). Subpart GG was adopted by the Department by reference in Rule 62-204.800, F.A.C. The key emission limits required by Subpart GG are 75 ppm NO_X @15% O_2. (assuming 25 percent efficiency) and 150 ppm SO_2 @15% O_2 (or <0.8% sulfur in fuel). The proposal is consistent with the NSPS which allows NO_X emissions over 100 ppm for the high efficiency unit to be purchased by JEA. No National Emission Standards for Hazardous Air Pollutants exist for stationary gas turbines.

6.3 Determinations by EPA and States

Recent Best Available Control Technology (BACT) proposals and determinations for NO_X in simple cycle gas turbine projects have ranged from 9 to 15 ppm @ 15% O_2 by Dry Low NO_X Combustion or Hot Selective Catalytic Reduction. Values whiel firing oil are typically 42 ppm by wet injection. In addition to being a simple cycle project, this unit will operate as a "peaker" and emissions will not trigger PSD and BACT. JEA has proposed a limits of 15 ppm for gas firing and 42 ppm for oil firing, which will avoid PSD. These are within the range of recent simple cycle, peaker BACT limits. Similarly, the proposed CO and VOC limits are within the range of recent BACT determinations for both simple and combined cycle projects.

6.4 Review of Combustion Turbine Control Technologies

A complete discussion of control options was not required because the project is not subject to a Best Available Control Technology Determination. However the applicant discussed the technology to be employed in order to comply with the New Source Performance Standards and the requested limits. The Department has included other information typically included in a complete BACT determination for comparison purposes.

6.4.1 Nitrogen Oxides Formation

Much of the discussion in this section is based on a 1993 EPA document on Alternative Control Techniques for NO_X Emissions from Stationary Gas Turbines. Project-specific information is included where applicable.

Nitrogen oxides form in the gas turbine combustion process as a result of the dissociation of molecular nitrogen and oxygen to their atomic forms and subsequent recombination into seven different oxides of nitrogen. Thermal NO_X forms in the high temperature area of the gas turbine combustor. Thermal NO_X increases exponentially with increases in flame temperature and linearly with increases in residence time. Flame temperature is dependent upon the ratio of fuel burned in a flame to the amount of fuel that consumes all of the available oxygen.

By maintaining a low fuel ratio (lean combustion), the flame temperature will be lower, thus reducing the potential for NO_X formation. Prompt NO_X is formed in the proximity of the flame front as intermediate combustion products. The contribution of Prompt to overall NO_X is relatively small in lean, near-stoichiometric combustors and increases for leaner fuel mixtures. This provides a practical limit for NO_X control by lean combustion.

Fuel NO_X is formed when fuels containing bound nitrogen are burned. This phenomenon is not important when combusting natural gas.

Uncontrolled emissions range from about 100 to over 600 parts per million by volume, dry, corrected to 15 percent oxygen (ppm @15% O_2). For large modern turbines, the Department estimates uncontrolled emissions at approximately 200 ppm @15% O_2.

6.4.2 NO_X Control Techniques

Combustion Controls

The excess air in lean combustion, cools the flame and reduces the rate of thermal NO_X formation. Lean premixing of fuel and air prior to combustion can further reduce NO_X emissions. This is accomplished by minimizing localized fuel-rich pockets (and high temperatures) that can occur when trying to achieve lean mixing within the combustion zones.

The above principle is depicted in Figure 5 for a General Electric can-annular combustor operating on gas. For ignition, warm-up, and acceleration to approximately 20 percent load, the first stage serves as the complete combustor. Flame is present only in the first stage, which is operated as lean stable combustion will permit. With increasing load, fuel is introduced into the secondary stage, and combustion takes place in both stages. When the load reaches approximately 40 percent, fuel is cut off to the first stage and the flame in this stage is extinguished. The venturi ensures the flame in the second stage cannot propagate upstream to the first stage. When the fuel in the first-stage flame is extinguished (as verified by internal flame detectors), fuel is again introduced into the first stage, which becomes a premixing zone to deliver a lean, unburned, uniform mixture to the second stage. The second stage acts as the complete combustor in this configuration.

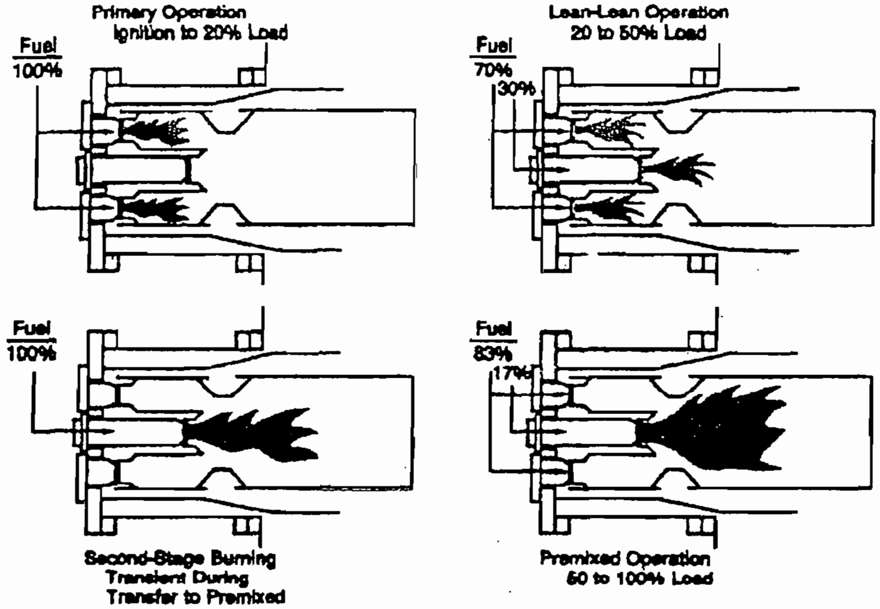
To further reduce NO_X emissions, GE developed the DLN-2 combustor (cross section shown in Figure 5) wherein air usage (other than for premixing) was minimized. The venturi and the centerbody assembly were eliminated and the combustor has a single burning zone. So-called "quaternary fuel" is introduced through pegs located on the circumference of the outward combustion casing.

The emission characteristics of General Electric's DLN 2 combustors are given in Figure 6 (gas) and 7 (fuel oil). NO_X concentrations are higher in the exhaust at lower loads because at lower loads, the combustor do not operate in the lean pre-mix mode. Therefore such a combustor emits NO_X at concentrations of 25 parts per million (ppm) at loads between 50 and 100 percent of capacity, but concentrations as high as 100 ppm at less than 50 percent of capacity.

Simplified cross sectional views of the totally premixed DLN-2.6 combustor to be installed at the JEA project are shown in Figure 8. The combustor is similar to the DLN-2 with the addition of a sixth (center) fuel nozzle to achieve emissions as low as 9 ppm of NO_X and 9 ppm of CO. The expected emission characteristics of General Electric's DLN 2.6 combustors, tuned for the proposed project, are given in Figure 9 (gas). Emissions characteristics while firing oil are expected to be the same as shown for the DLN-2 in Figure 7. Note that VOC comprises a very small amount of the "unburned hydrocarbons" which in turn are mostly non-VOC methane,

In all but the most recent gas turbine combustor designs, the high temperature combustion gases are cooled to an acceptable temperature with dilution air prior to entering the turbine (expansion) section. The sooner this cooling occurs, the lower the thermal NO_X formation. Cooling is also required to protect the first stage nozzle. When this is accomplished by air cooling, the air is injected into the component and is ejected into the combustion gas stream, causing a further drop in combustion gas temperature. This, in turn, results in a lower achievable thermal efficiency for the unit.

Larger units, such as the Westinghouse 501 G or the planned General Electric 7H, use steam in a closed loop system to provide much of the cooling. The fluid is circulated through the internal portion of the nozzle component or around the transition piece between the combustor and the nozzle and does not enter the exhaust stream. Instead it is normally sent



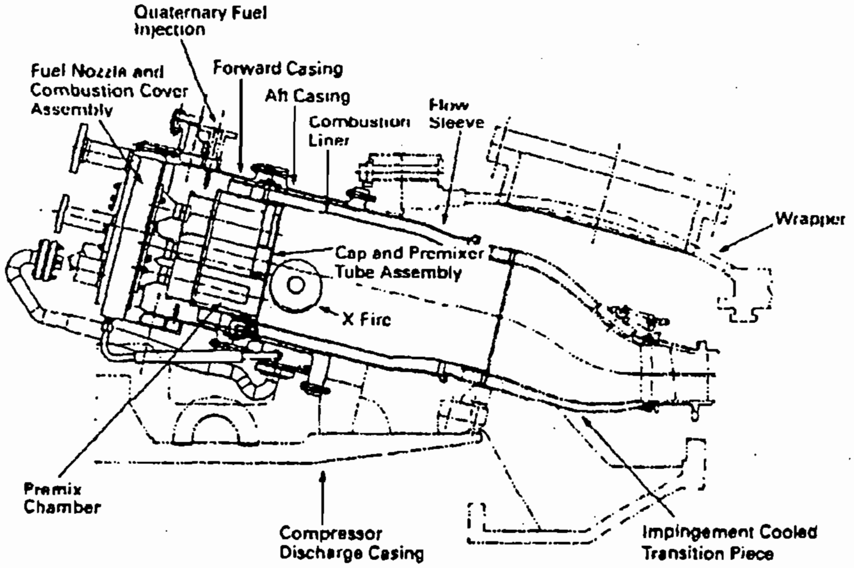


Figure 5 - Dry Low NOx Operating Modes - DLN-1

Cross Section of DLN-2.0

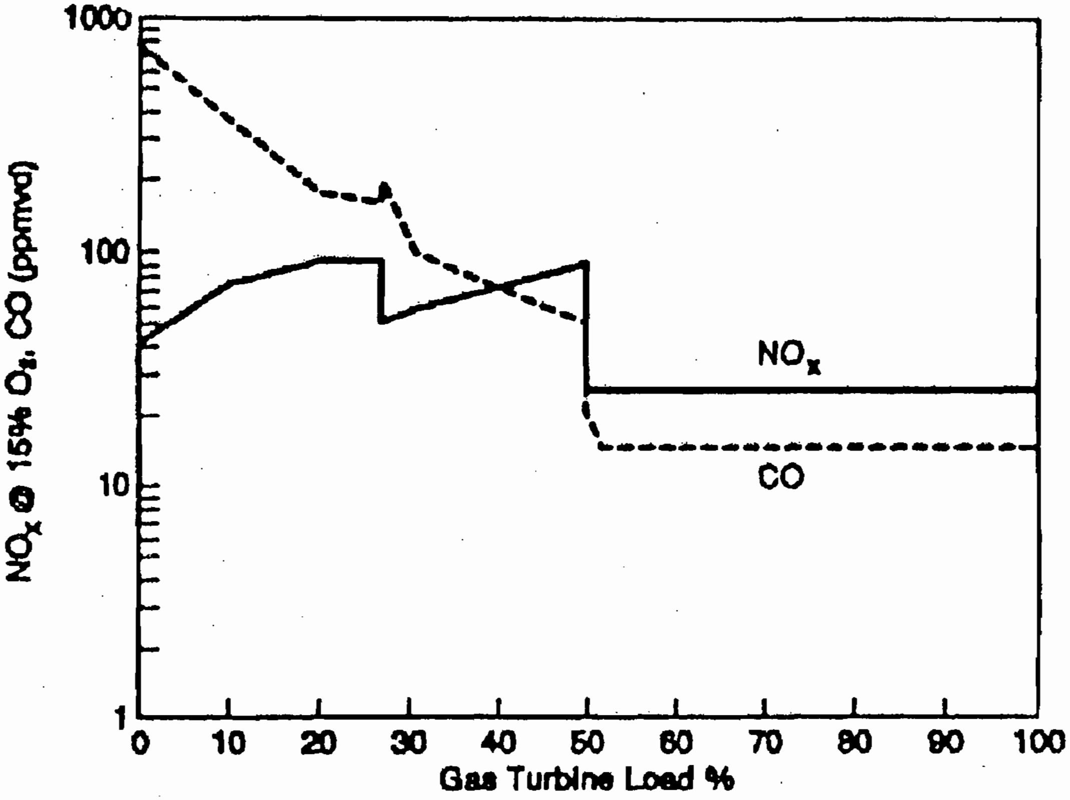


Figure 6 - Emissions Performance Curves for GE DLN-2 Combustor

Firing Natural Gas in a Dual Fuel GE 7FA Combustion Turbine

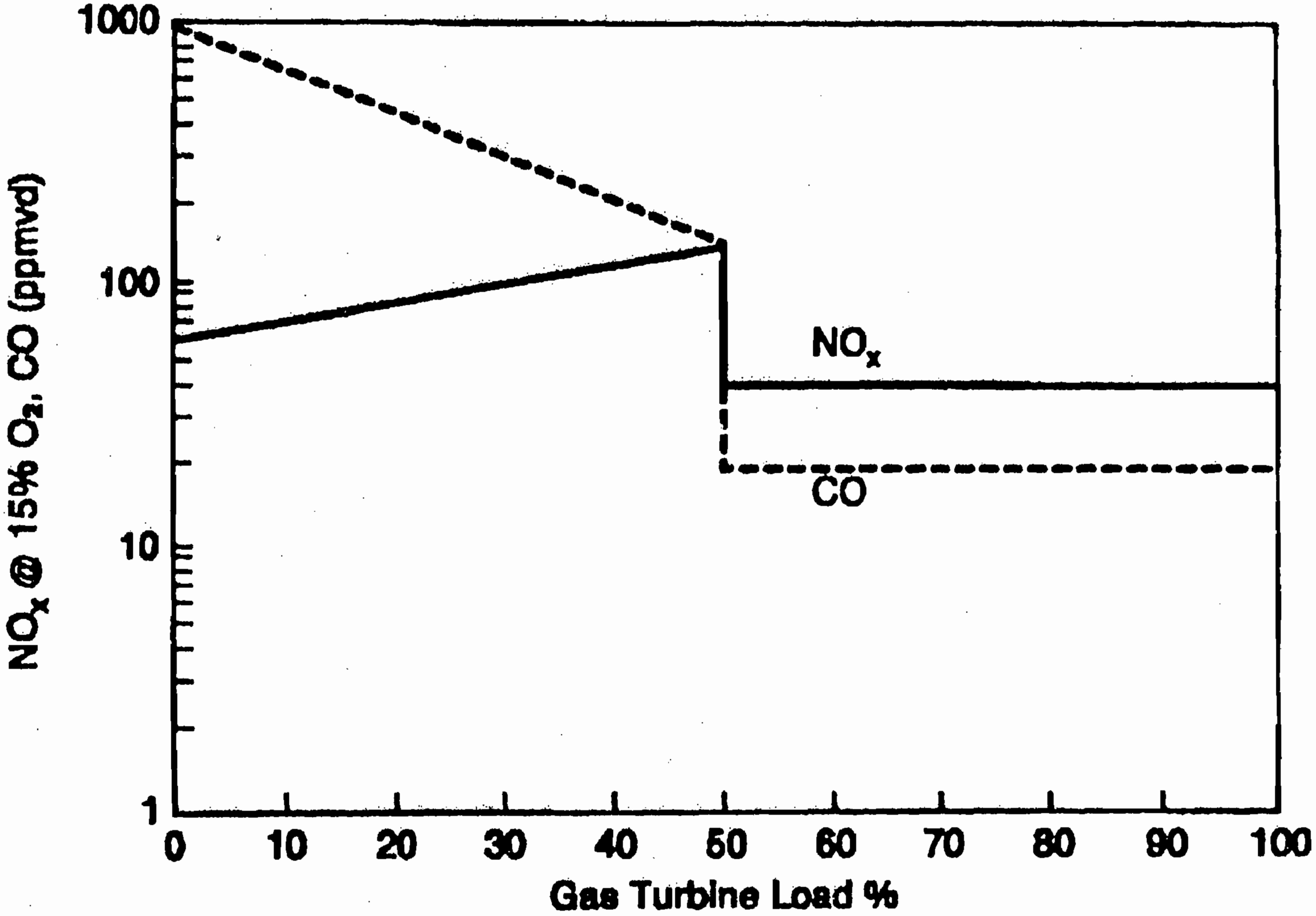


Figure 7 - Emissions Performance Curves for GE DLN-2 Combustor Firing Fuel Oil in Dual Fuel GE 7FA Turbine

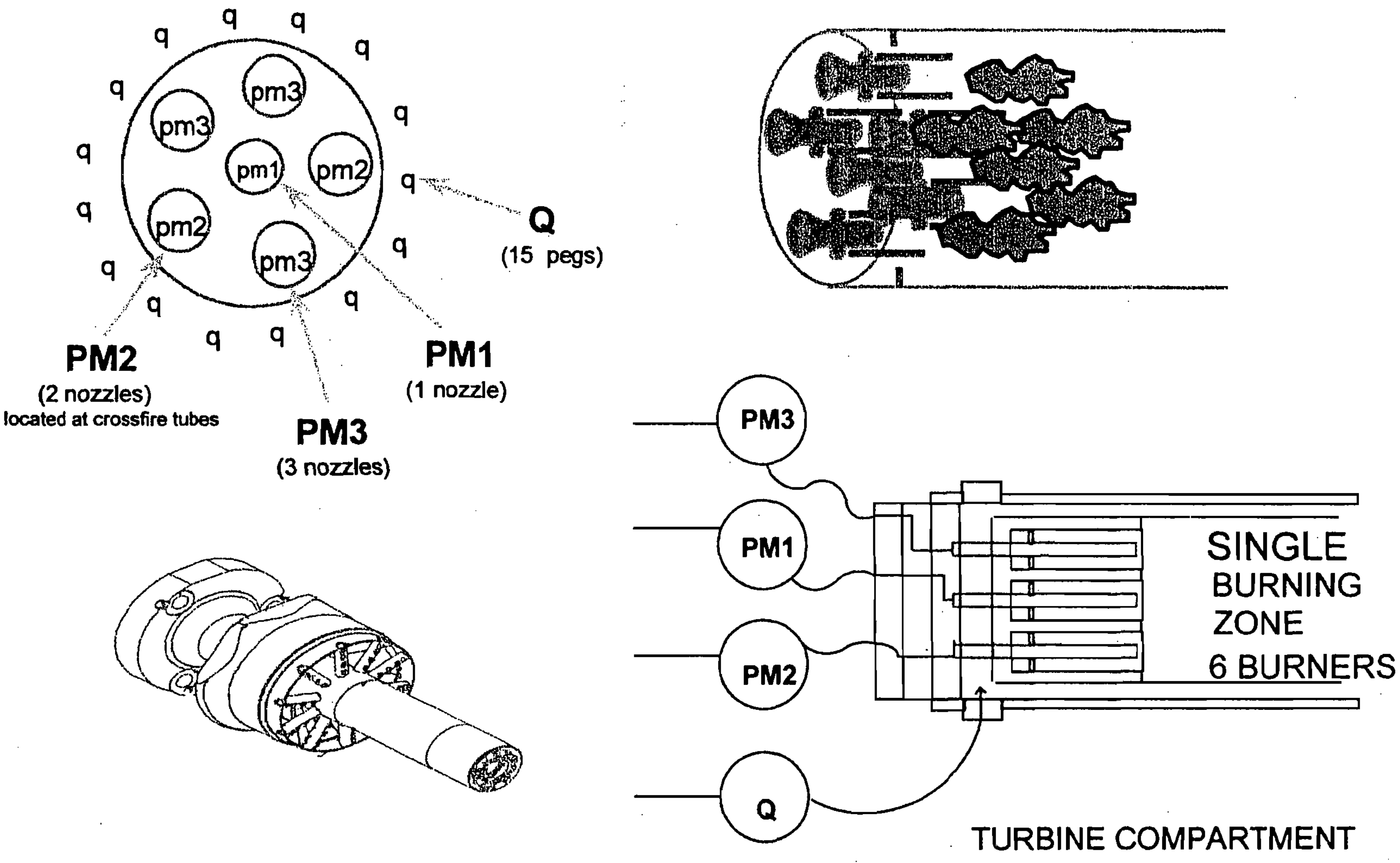


Figure 8 - GE DLN-2.6 Combustor and Nozzle Arrangement

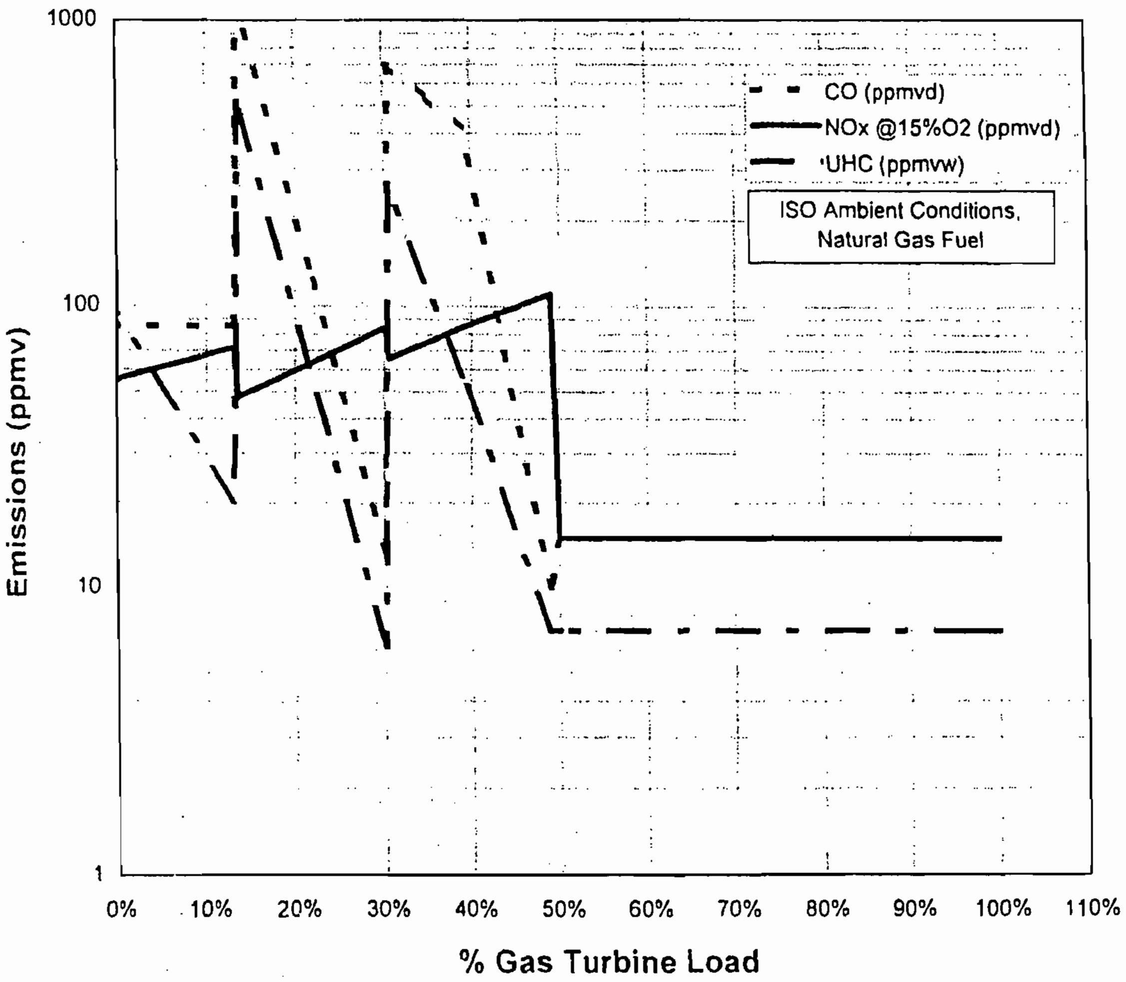


Figure 9 - Emissions Performance Curves for GE DLN-2.6 Combustor Firing Natural Gas in a Dual Fuel GE 7FA Combustion Turbine

(Simple Cycle, Intermittent Duty - If Tuned to 15 ppm NOx) back to the steam generator. The difference between flame temperature and firing temperature into the first stage is minimized and higher efficiency is attained.

Another important result of steam cooling is that a higher firing temperature can be attained with no increase in flame temperature. Flame temperatures and NO_X emissions can therefore be maintained at comparatively low levels even at high firing temperatures. At the same time, thermal efficiency should be greater when employing steam cooling. A similar analysis applies to steam cooling around the transition piece between the combustor and first stage nozzle.

The relationship between flame temperature, firing temperature, unit efficiency, and NO_X formation can be appreciated from Figure 10 which is from a General Electric discussion on these principles. In addition to employing pre-mixing and steam cooling, further reductions are accomplished through design optimization of the burners, testing, further evaluation, etc.

At the present time, emissions achieved by combustion controls are low as 9 ppm (and even lower) from gas turbines smaller than about 200 MW (simple cycle), such as the F class.

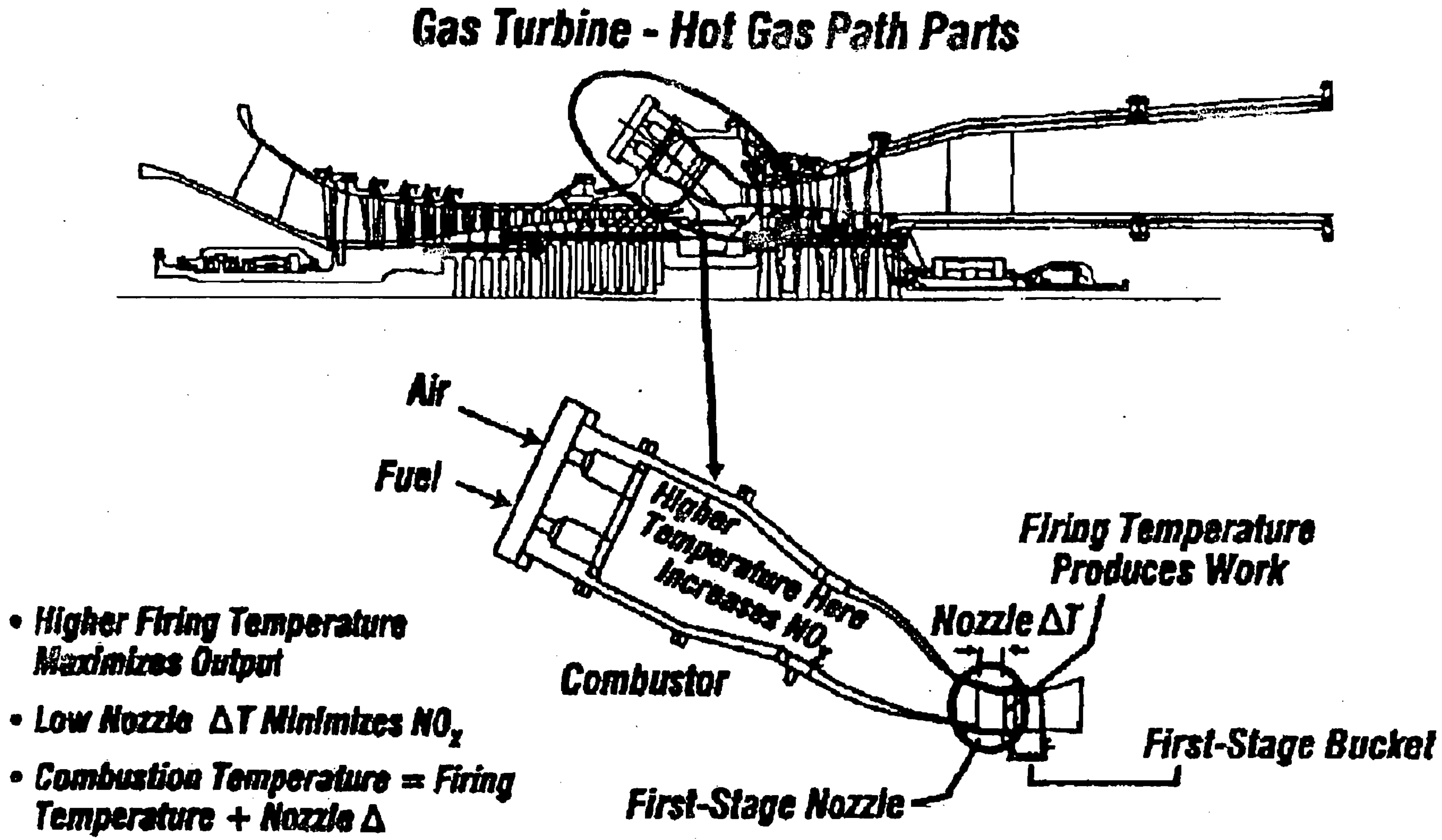
Selective Catalytic Combustion

Selective catalytic reduction (SCR) is an add-on NO_X control technology that is employed in the exhaust stream following the gas turbine. SCR reduces NO_X emissions by injecting ammonia into the flue gas. As of early 1992, over 100 gas turbine installations already used SCR in the United States. The only combustion turbines in Florida employing SCR are at the FPC Hines Energy Complex, where Westinghouse is unable to meet the DLN limits at the present time. Recently, FPC proposed a second construction phase incorporating SCR in two Westinghouse 501F combustion turbines. Seminole Electric recently advised the Department that it would install SCR in a previously Westinghouse 501F project, originally based on DLN. Virtually all SCR units are used in combination with wet injection or combustion controls.

Ammonia reacts with NO_X in the presence of a catalyst and excess oxygen yielding molecular nitrogen and water. The catalyst used in combined cycle, low temperature applications (conventional SCR), is usually vanadium or titanium oxide and accounts for almost all installations. For high temperature applications (Hot SCR up to 1100 °F), such as simple cycle turbines, zeolite catalysts are available but used in few applications to-date.

In the past, sulfur was found to poison the catalyst material. Sulfur-resistant catalyst materials are now available, however, and catalyst formulation improvements have proven effective in resisting performance degradation with fuel oil in Europe and Japan, where conventional SCR catalyst life in excess of 4 to 6 years has been achieved, versus 8 to 10 years with natural gas.

In a manner analogous to balancing control of NO_X from the combustor with emissions of CO and hydrocarbon, similar balancing is required when controlling NO_X by SCR. Excessive ammonia use tends to increase emissions of CO, ammonia (slip), and particulate matter (when sulfur bearing fuels are used). Permit BACT limits as low as 3.5 ppm NO_X have been specified using SCR for a combined cycle F Class project in Alabama and proposed for another F Class project in Mississippi.



Gas Turbine - Hot Gas Path Parts

- Higher Firing Temperature Maximizes Output
- Low Nozzle ΔT Minimizes NO_x
- Combustion Temperature = Firing Temperature + Nozzle Δ

Figure 10 - Relation Between Flame Temperature and firing Temperature

6.4.3 Particulate Matter (PM/PM_{10}) Control

Particulate matter is generated by various physical and chemical processes during combustion and will be affected by the design and operation of the NO_X controls. Particulate matter emitted from this unit will mainly be less than 10 microns in diameter (PM_{10}).

Natural gas and maximum 0.05 percent sulfur No. 2 fuel oil will be the only fuels fired and are efficiently combusted in gas turbines. Clean fuels are necessary to avoid damaging turbine blades and other components already exposed to very high temperature and pressure. Natural gas is an inherently clean fuel and contains no ash. The fuel oil to be used contains minimal ash.

A technology review indicated that the top control option for PM_{10} is a combination of good combustion practices, fuel quality, and filtration of inlet air. This has been chosen as BACT by the applicant and the Department concurs. Annual emissions of PM/PM_{10} are expected to be less than 20 tons per year.

6.4.4 Carbon Monoxide (CO) Control

CO is emitted from combustion turbines due to incomplete fuel combustion. Combustion design and catalytic oxidation are the control alternatives that are viable for the project. The most stringent control technology for CO emissions is the use of an oxidation catalyst.

Most installations using catalytic oxidation are located in the Northeast. Among them are the 272 MW Berkshire, Massachusetts facility, 240 MW Brooklyn Navalyard Facility, the 240 MW Masspower facility, the 165 MW Pittsfield Generating Plant in Massachusetts, and the 345 MW Selkirk Generating Plant in New York. Catalytic oxidation was recently installed at a cogeneration plant at Reedy Creek (Walt Disney World), Florida to avoid PSD review which would have been required due to increased operation at low load. Along with its recent proposal to install SCR on a Westinghouse 501F unit (Hardee Unit 3), Seminole Electric proposes to install an oxidation catalyst for CO control.

Most combustion turbines incorporate good combustion to minimize emissions of CO. These installations typically achieve CO emissions between 10 and 30 ppm at full load, even as they achieve relatively low NO_X emissions by SCR or dry low NO_X means. By comparison, the value of 15 ppm proposed JEA's application for gas firing appears relatively low, but consistent with the capabilities of the DLN-2.6 technology as discussed above. A CO limit of 20 ppm is proposed when burning oil. Annual emission are expected not to exceed 97 ton per year.

6.4.5 Volatile Organic Compound (VOC) Control

Volatile organic compound (VOC) emissions, like CO emissions, are formed due to incomplete combustion of fuel. There are no viable add-on control techniques as the combustion turbine itself is very efficient at destroying VOC. The applicant has proposed good combustion practices to control VOC to 1.4 ppm (gas) and 3.5 (oil). These values are as low as any BACT-based VOC limit previously set by the Department. According to GE, even lower VOC emissions were achieved during recent tests of the DLN-2.6 technology when firing natural gas.[2] Annual emissions of VOC are not expected to exceed 6 TPY.

6.5 Background on Selected Gas Turbine

JEA plans to install a nominal 170 MW General Electric MS7241FA combustion turbine to be operated in a simple cycle mode.

The first commercial GE 7F Class unit was a installed at the Virginia Power Chesterfield Station in 1990.[2] The initial units had a firing temperature of 2300°F and a combined cycle efficiency exceeding 50 percent. By the mid-90s, the line was improved by higher combustor pressure, a firing temperature of 2400°F, and a combined cycle efficiency of approximately 56 percent based on a 167 MW combustion turbine. The line was redesignated as the 7FA Class.

The first GE 7F/FA project in Florida was at the FPL Martin Plant in 1993 and entered commercial service in 1994.[3] The units were equipped with DLN-2 combustors with a permitted NO_X limit of 25 ppm These actually achieve less 25 ppm of NO_X and 15 ppm of CO. The City of Tallahassee recently received approval to install a GE 7FA Class unit at its Purdom Plant.[4] Although permitted emissions are 12 ppm of NO_X, the City obtained a performance guarantee from GE of 9 ppm.[5]

General Electric, other manufacturers, and their customers are relying on further advancement and refinement of DLN technology to provide sufficient NO_X control for their combined cycle turbines in Florida. Where required by BACT determinations of certain states, General Electric incorporates SCR in combined cycle projects.[6]

The approach of progressively refining such technology is a proven one, even on some relatively large units. Basically this was the strategy adopted in Florida throughout the 1990's. Recently GE Frame 7 FA units met performance guarantees of 9 ppm with DLN-2.6 burners at Fort St. Vrain, CO and Clark County, WA.[7] GE has already achieved emissions of approximately 6 ppm on gas at a dual-fuel MW 7EA (120 MW combined cycle) unit at Cane Island Power Park in Kissimmee, FL.[8] The Cane Island unit is equipped with DLN-2 combustors. According to GE, similar performance is expected soon on the 7FA line and performance guarantees less than 9 ppm can be expected using the DLN-2.6 combustors for units delivered in a couple of years.[9]

6.6 Control Technology Determination

Following are the emission limits determined for the JEA project assuming full load. *Values for NO_X are corrected to 15% O_2 on a dry basis.* These limits or their equivalents in terms of pounds per hour, are given in the permit Specific Conditions.

NO_X	SO_2	CO	VOC	PM/Visibility (% Opacity)	Technology and Comments
15 ppm (NG) 42 ppm (FO)	<2gr S/100scf of gas 0.05% S in FO	15 ppm (NG) 20 ppm (FO)	1.4 ppm (NG) 3.5 ppm (FO)	10	Dry Low NO_X Combustors Wet Injection Pipeline Natural Gas Good Combustion Fuel Oil, 0.05% Sulfur

6.7 Rationale for Control Technology Determination

- JEA obtained a guarantee from GE for DLN-2.6 combustors which have been demonstrated to meet all of the above limits on "7FA" Class gas turbines.
- The JEA project "nets out" of PSD review and BACT.
- All of the combustion turbine emission limits comply with the NSPS and are close or equal to recent Department BACT determinations applicable to new units at start-up.
- PM_{10} emissions will be very low and difficult to measure. Therefore, the Department, with JEA's concurrence, will set a visible emission standard of 10 percent opacity.
- The Department will set CO limits achievable by good combustion equal to 15 ppm on gas and 20 ppm on oil. CO limits for the FPL Fort Myers Repowering Project and the Santa Rosa Energy Center are 12 ppm on gas. Similar limits have been proposed in recently issued Intents for Kissimmee Utilities Cane Island Unit 3 and the Duke Energy New Smyrna Beach Power Project.
- VOC emissions of 1.4 ppm (gas) and 3.5 (oil) proposed by JEA are at the lower end of values determined as BACT. Good Combustion is sufficient to achieve these low levels with the DLN-2.6 combustors while firing natural gas.
- SO_2 and $H_2SO_{4\text{Acid Mist}}$ emissions compliance will be implemented through the Custom Fuel Monitioring Schedule for each allowed fuel.

6.8 Compliance Procedures

Pollutant	Compliance Procedure
Visible Emissions	Method 9
Volatile Organic Compounds	Method 18, 25, or 25A (initial tests only)
Carbon Monoxide	Annual Method 10 (can use RATA if at capacity)
NO_X (24-hr average)	NO_X CEMS, O_2 or CO_2 diluent monitor, and flow device as needed
NO_X (NSPS initial performance)	Method 20 (can use RATA if at capacity)

7. SOURCE IMPACT ANALYSIS

An air quality analysis was not required because the modification is not subject to PSD review.

8. CONCLUSION

Based on the foregoing technical evaluation of the application and other available information, the Department has made a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations.

A. A. Linero, P.E.
Teresa Heron, Review Engineer

REFERENCES

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[1] EPA. "Alternative Control Techniques for NO_X Emissions from Stationary Gas Turbines." 1993.

[2] Telecon. Vandervort, C., GE, and Linero, A. A., DEP. VOC Emissions From FA Gas Turbines with DLN-2.6 Combustors.

[3] Brochure. General Electric. "GE Gas Turbines - MS7001FA." Circa 1993.

[4] Davis, L.B. :Dry Low NO_X Combustion Systems for GE Heavy Duty Gas Turbines. 1994.

[5] Florida DEP. PSD Permit, City of Tallahassee Purdom Unit 8. May, 1998.

[6] City of Tallahassee. PSD/Site Certification Application. April, 1997.

[7] State of Alabama. PSD Permit, Alabama Power/Barry (GE 7FA).

[8] Telecon. Schorr, M., GE, and Costello, M., Florida DEP. March 31, 1998. Status of DLN-2.6 Program.

[9] Florida DEP. Bureau of Air Regulation Monthly Report. June, 1998.

[10] Telecon. Schorr, M., GE, and Linero, A. A., Florida DEP. August, 1998. Cost effectiveness of DLN versus SCR.

Attachment 13

Description of Stack Sampling Facilities

The new simple cycle combustion turbine generator (E/V 015) has a stack sampling platform at the 70 ft (approximately) level of the stack. The stack diameter at the sampling ports is 18 ft. There are four sampling ports available for emission testing. The sampling ports are 40 inches in diameter and have 20 inch nipples. Stack sampling platform access is available via a caged latter. The stack sampling facilities were installed in accordance with Rule 62-297.310(6) (attached), as required by Air Construction Permit No. 0310047-002-AC.

(5) Determination of Process Variables.

(a) Required Equipment. The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.

(b) Accuracy of Equipment. Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.

(6) Required Stack Sampling Facilities. Sampling facilities include sampling ports, work platforms, access to work platforms, electrical power, and sampling equipment support. All stack sampling facilities must meet any Occupational Safety and Health Administration (OSHA) Safety and Health Standards described in 29 CFR Part 1910, Subparts D and E.

(a) Permanent Test Facilities. The owner or operator of an emissions unit for which a compliance test, other than a visible emissions test, is required on at least an annual basis, shall install and maintain permanent stack sampling facilities.

(b) Temporary Test Facilities. The owner or operator of an emissions unit that is not required to conduct a compliance test on at least an annual basis may use permanent or temporary stack sampling facilities. If the owner chooses to use temporary sampling facilities on an emissions unit, and the Department elects to test the unit, such temporary facilities shall be installed on the emissions unit within 5 days of a request by the Department and remain on the emissions unit until the test is completed.

(c) Sampling Ports.

1. All sampling ports shall have a minimum inside diameter of 3 inches.

2. The ports shall be capable of being sealed when not in use.

3. The sampling ports shall be located in the stack at least 2 stack diameters or equivalent diameters downstream and at least 0.5 stack diameter or equivalent diameter upstream from any fan, bend, constriction or other flow disturbance.

4. For emissions units for which a complete application to construct has been filed prior to December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 15 feet or less. For stacks with a larger diameter, four sampling ports, each 90 degrees apart, shall be installed. For emissions units for which a complete application to construct is filed on or after December 1, 1980, at least two sampling ports, 90 degrees apart, shall be installed at each sampling location on all circular stacks that have an outside diameter of 10 feet or less. For stacks with larger diameters, four sampling ports, each 90 degrees apart, shall be installed. On horizontal circular ducts, the ports shall be located so that the probe can enter the stack vertically, horizontally or at a 45 degree angle.

5. On rectangular ducts, the cross sectional area shall be divided into the number of equal areas in accordance with EPA Method 1. Sampling ports shall be provided which allow access to each sampling point. The ports shall be located so that the probe can be inserted perpendicular to the gas flow.

(d). Work Platforms.

1. Minimum size of the working platform shall be 24 square feet in area. Platforms shall be at least 3 feet wide.

2. On circular stacks with 2 sampling ports, the platform shall extend at least 110 degrees around the stack.

3. On circular stacks with more than two sampling ports, the work platform shall extend 360 degrees around the stack.

4. All platforms shall be equipped with an adequate safety rail (ropes are not acceptable), toeboard, and hinged floor-opening cover if ladder access is used to reach the platform. The safety rail directly in line with the sampling ports shall be removable so that no obstruction exists in an area 14 inches below each sample port and 6 inches on either side of the sampling port.

(e). Access to Work Platform.

1 Ladders to the work platform exceeding 15 feet in length shall have safety cages or fall arresters with a minimum of 3 compatible safety belts available for use by sampling personnel.

2. Walkways over free-fall areas shall be equipped with safety rails and toeboards.

(f). Electrical Power.

1. A minimum of two 120-volt AC, 20-amp outlets shall be provided at the sampling platform within 20 feet of each sampling port.

2. If extension cords are used to provide the electrical power, they shall be kept on the plant's property and be available immediately upon request by sampling personnel.

(g). Sampling Equipment Support.

1. A three-quarter inch eyebolt and an angle bracket shall be attached directly above each port on vertical stacks and above each row of sampling ports on the sides of horizontal ducts.

a. The bracket shall be a standard 3 inch x 3 inch x one-quarter inch equal-legs bracket which is 1 and one-half inches wide. A hole that is one-half inch in diameter shall be drilled through the exact center of the horizontal portion of the bracket. The horizontal portion of the bracket shall be located 14 inches above the centerline of the sampling port.

b. A three-eighth inch bolt which protrudes 2 inches from the stack may be substituted for the required bracket. The bolt shall be located 15 and one-half inches above the centerline of the sampling port.

c. The three-quarter inch eyebolt shall be capable of supporting a 500 pound working load. For stacks that are less than 12 feet in diameter, the eyebolt shall be located 48 inches above the horizontal portion of the angle bracket. For stacks that are greater than or equal to 12 feet in diameter, the eyebolt shall be located 60 inches above the horizontal portion of the angle bracket. If the eyebolt is more than 120 inches above the platform, a length of chain shall be attached to it to bring the free end of the chain to within safe reach from the platform.

2. A complete monorail or dualrail arrangement may be substituted for the eyebolt and bracket.

3. When the sample ports are located in the top of a horizontal duct, a frame shall be provided above the port to allow the sample probe to be secured during the test.

(7) Frequency of Compliance Tests. The following provisions apply only to those emissions units that are subject to an emissions limiting standard for which compliance testing is required.

(a) General Compliance Testing.

1. The owner or operator of a new or modified emissions unit that is subject to an emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining an operation permit for such emissions unit.

2. For excess emission limitations for particulate matter specified in Rule 62-210.700, F.A.C., a compliance test shall be conducted annually while the emissions unit is operating under soot blowing conditions in each federal fiscal year during which soot blowing is part of normal emissions unit operation, except that such test shall not be required in any federal fiscal year in which a fossil fuel steam generator does not burn liquid and/or solid fuel for more than 400 hours other than during startup.

3. The owner or operator of an emissions unit that is subject to any emission limiting standard shall conduct a compliance test that demonstrates compliance with the applicable emission limiting standard prior to obtaining a renewed operation permit. Emissions units that are required to conduct an annual compliance test may submit the most recent annual compliance test to satisfy the requirements of this provision. In renewing an air operation permit pursuant to Rule 62-210.300(2)(a)3.b., c., or d., F.A.C., the Department shall not require submission of emission compliance test results for any emissions unit that, during the year prior to renewal:

a Did not operate; or

b. In the case of a fuel burning emissions unit, burned liquid and/or solid fuel for a total of no more than 400 hours.

4. During each federal fiscal year (October 1 -- September 30), unless otherwise specified by rule, order, or permit, the owner or operator of each emissions unit shall have a formal compliance test conducted for:

a. Visible emissions, if there is an applicable standard;

b. Each of the following pollutants, if there is an applicable standard, and if the emissions unit emits or has the potential to emit: 5 tons per year or more of lead or lead compounds measured as elemental lead; 30 tons per year or more of acrylonitrile; or 100 tons per year or more of any other regulated air pollutant; and

c. Each NESHAP pollutant, if there is an applicable emission standard.

Attachment 14

Alternate Methods of Operation

Alternative methods of operation include the use of pipeline quality natural gas and 0.05 percent sulfur NO. 2 or superior grade of fuel oil.

Attachment 15

Acid Rain Permit Application

BEST AVAILABLE COPY

Phase II Permit Application

Page 1

For more information, see instructions and refer to 40 CFR 72.30 and 72.31 and Chapter 62-214, F.A.C.

This submission is: ☒ New ☐ Revised

STEP 1
Identify the source by plant name, State, and ORIS code from NADB

Plant Name JD Kennedy
State FL
ORIS Code 0666

STEP 2 Enter the boiler ID# from NADB for each affected unit and indicate whether a repowering plan is being submitted for the unit by entering "yes" or "no" at column c. For new units, enter the requested information in columns d and e.

a	b	c	d	e
	Compliance Plan			
Boiler ID#	Unit will hold allowances in accordance with 40 CFR 72.9(c)(1)	Repowering Plan	New Units Commence Operation Date *	New Units Monitor Certification Deadline
015**	Yes		April 2000	July 2000
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			
	Yes			

STEP 3
Check the box if the response in column c of Step 2 is "Yes for any unit

☐ For each unit that will be repowered, the Repowering Extension Plan form is included and the Repowering Technology Petition form has been submitted or will be submitted by June 1, 1997.

* Estimated
** Presumed Account ID #000666000015

Plant Name (from Step 1) JD Kennedy

EP 4
ead the standard
equirements and
certification, enter
the name of the
designated repre-
sentative, and sign
and date

Standard Requirements

Permit Requirements.

(1) The designated representative of each Acid Rain source and each Acid Rain unit at the source shall:
(i) Submit a complete Acid Rain part application (including a compliance plan) under 40 CFR part 72, Rules 62-214.320 and 330, F.A.C. in accordance with the deadlines specified in Rule 62-214.320, F.A.C.; and
(ii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain part application and issue or deny an Acid Rain permit;
(2) The owners and operators of each Acid Rain source and each Acid Rain unit at the source shall:
(i) Operate the unit in compliance with a complete Acid Rain part application or a superseding Acid Rain part issued by the permitting authority; and
(ii) Have an Acid Rain Part.

Monitoring Requirements.

(1) The owners and operators and, to the extent applicable, designated representative of each Acid Rain source and each Acid Rain unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75, and Rule 62-214.420, F.A.C.
(2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the unit with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.
(3) The requirements of 40 CFR part 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

Sulfur Dioxide Requirements.

(1) The owners and operators of each source and each Acid Rain unit at the source shall:
(i) Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit; and
(ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.
(2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.
(3) An Acid Rain unit shall be subject to the requirements under paragraph (1) of the sulfur dioxide requirements as follows:
(i) Starting January 1, 2000, an Acid Rain unit under 40 CFR 72.6(a)(2); or
(ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an Acid Rain unit under 40 CFR 72.6(a)(3).
(4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
(5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1)(i) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
(6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or the written exemption under 40 CFR 72.7 and 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
(7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements. The owners and operators of the source and each Acid Rain unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

Excess Emissions Requirements.

(1) The designated representative of an Acid Rain unit that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.
(2) The owners and operators of an Acid Rain unit that has excess emissions in any calendar year shall:
(i) Pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and
(ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements.

(1) Unless otherwise provided, the owners and operators of the source and each Acid Rain unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:
(i) The certificate of representation for the designated representative for the source and each Acid Rain unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with Rule 62-214.350, F.A.C.; provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative;
(ii) All emissions monitoring information, in accordance with 40 CFR part 75;
(iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and,

Plant Name (from Step 1) JD Kennedy

Recordkeeping and Reporting Requirements (cont)

(iv) Copies of all documents used to complete an Acid Rain part application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.

(2) The designated representative of an Acid Rain source and each Acid Rain unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability.

(1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain part application, an Acid Rain part, or a written exemption under 40 CFR 72.7 or 72.8, including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement pursuant to section 113(c) of the Act.
(2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
(3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
(4) Each Acid Rain source and each Acid Rain unit shall meet the requirements of the Acid Rain Program.
(5) Any provision of the Acid Rain Program that applies to an Acid Rain source (including a provision applicable to the designated representative of an Acid Rain source) shall also apply to the owners and operators of such source and of the Acid Rain units at the source.
(6) Any provision of the Acid Rain Program that applies to an Acid Rain unit (including a provision applicable to the designated representative of an Acid Rain unit) shall also apply to the owners and operators of such unit. Except as provided under 40 CFR 72.44 (Phase II repowering extension plans), and except with regard to the requirements applicable to units with a common stack under 40 CFR part 75 (including 40 CFR 75.16, 75.17, and 75.18), the owners and operators and the designated representative of one Acid Rain unit shall not be liable for any violation by any other Acid Rain unit of which they are not owners or operators or the designated representative and that is located at a source of which they are not owners or operators or the designated representative.
(7) Each violation of a provision of 40 CFR parts 72, 73, 75, 77, and 78 by an Acid Rain source or Acid Rain unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Effect on Other Authorities. No provision of the Acid Rain Program, an Acid Rain part application, an Acid Rain part, or a written exemption under 40 CFR 72.7 or 72.8 shall be construed as:

(1) Except as expressly provided in title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an Acid Rain source or Acid Rain unit from compliance with any other provision of the Act, including the provisions of title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;
(2) Limiting the number of allowances a unit can hold; *provided*, that the number of allowances held by the unit shall not affect the source's obligation to comply with any other provisions of the Act;
(3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;
(4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or,
(5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.

Certification

I am authorized to make this submission on behalf of the owners and operators of the Acid Rain source or Acid Rain units for which the submission is made. I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment.

Name	Jon P. Eckenbach	
Signature		Date 7/19/91

Acid Rain Program

Instructions for Phase II Permit Application

(40 CFR 72.30- 72.31 and Rule 62-214.320, F.A.C.)

The Acid Rain Program regulations require the designated representative to submit an Acid Rain part application for Phase II for each source with an Acid Rain unit. A complete Phase II part application is binding on the owners and operators of the Acid Rain source and is enforceable in the absence of a permit until the permitting authority either issues a permit with an Acid Rain part to the source or disapproves the application.

Please type or print. The alternate designated representative may sign in lieu of the designated representative. If assistance is needed, contact the permitting authority.

STEP 1 NADB is the National Allowance Data Base for the Acid Rain Program. To obtain the database on diskette, call the Acid Rain Hotline at (202) 233-9620. This data file is in dBase format for use on an IBM-compatible PC. It requires 2 megabytes of hard drive memory. If the unit is not listed in NADB, use the plant name, ORIS Code, and Boiler ID listed on the certificate of representation for the plant.

STEP 2 The monitor certification deadline is determined in accordance with 40 CFR 75.4. If the commence operation date or monitor certification date changes after the Phase II permit is issued, the source must submit a request for an administrative permit amendment.

STEP 5 "AIRS" is the Aerometric Information Retrieval System operated by EPA's Office of Air Quality Planning and Standards. The AIRS number for a source has 12 digits. "FINDS" is the Facility Indexing System. It provides an Agency-wide ID number to cross-identify facilities in all EPA data systems. Please enter these numbers if they are available; this step is optional.

Submission Instructions

For initial Phase II permit applications: If, by **November 15, 1995**, the State or local jurisdiction (*e.g.*, District, County, or City) in which the source is located has both (1) an acid rain program identified in a Federal Register notice as acceptable to the Administrator and (2) an operating permits program granted full or interim approval by the Administrator in a Federal Register notice, mail this form and three copies to that state or local authority. If not, mail this form and one copy to the EPA regional office and two copies to the State or local jurisdiction in which the source is located.

If you have questions regarding this form, contact your local, State, or EPA regional representative, or call EPA's Acid Rain Hotline at (202) 233-9620.

Attachment 16

Compliance Test Reports

TECHNICAL SERVICES, INC.
ENVIRONMENTAL CONSULTANTS

VISIBLE EMISSIONS
TEST DATA

FACILITY: Jacksonville Electric Authority.
Kennedy Generating Station

FACILITY ADDRESS: Talleyrand Avenue.
Jacksonville, Florida

MAILING ADDRESS: P.O. Box 4910
Jacksonville, Florida 32201-4910

SOURCE IDENTIFICATION: No. 3 C. T
No. 4 C. T.

COMPANY CONTACT: Mr. Joseph Werner, P.E.

TEST CONDUCTED BY: David Salter

TEST DATE AND TIME: C.T. No. 3 1515 - 1615 Hrs 08/23/01
C.T. No. 4 1520 - 1620 Hrs 08/23/01

COMMENTS: Standard tests.

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TECHNICAL SERVICES, INC
2901 DANESE STREET
JACKSONVILLE, FLORIDA 32206
OFFICE 904 - 353 - 5761 FAX 904 - 358 - 2908

PAGE 1 OF 1

START TIME 1515 END TIME 1615

OBSERVATION DATE 8-23-01 TIME ZONE EST

FACILITY JEA Kennedy Station

SOURCE KCT-3

ADDRESS

CITY Jx STATE FL ZIP

PHONE SOURCE ID NO.

PROCESS Turbine OPERATING MODE

CONTROL EQUIP. OPERATING MODE

DESCRIBE EMISSION POINT

Rectangular Stack ~ 5'x10"

HEIGHT OF EMISSION POINT START ~20' END ✓

HEIGHT RELATIVE TO OBSERVER START ~15' END ✓

DISTANCE TO EMISSIONS POINT START ~50' END ✓

DIRECTION TO EM. PT. START 26° END ✓

VERTICAL ANGLE TO OBS. PT. START 11° END ✓

DESCRIBE EMISSIONS START ~~[illegible]~~ Coning END ✓

EMISSION COLOR START Black END ✓

WATER DROPLET PLUME YES / [✓ NO]

ATTACHED DETACHED

DESCRIBE PLUME BACKGROUND START Sky END ✓

BACKGROUND COLOR START Blue END ✓

SKY CONDITION START Clear END ✓

WIND SPEED START 3-5 mph END ✓

WIND DIRECTION START NE END ✓

AMBIENT TEMPERATURE START ~~[illegible]~~ 90 END ✓

WET BULB TEMP 76

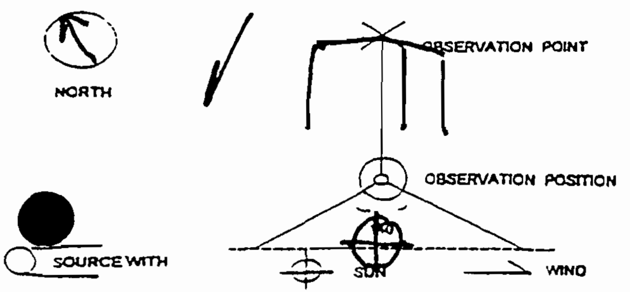
%RH 52%

COMMENTS......

Observer on Ground

SEC/MIN	0	15	30	45	SEC/MIN	0	15	30	45
1	5	5	5	5	31	5	5	5	5
2	5	5	5	5	32	5	5	5	5
3	5	5	5	5	33	5	5	5	5
4	0	0	0	5	34	5	5	5	5
5	5	5	5	5	35	5	5	5	5
6	5	5	5	5	36	5	5	5	5
7	5	5	5	5	37	5	5	5	5
8	5	5	5	5	38	5	5	5	5
9	5	5	5	5	39	5	5	5	5
10	5	5	5	5	40	5	5	5	5
11	5	5	5	5	41	5	5	5	5
12	5	5	5	5	42	5	5	5	5
13	5	5	5	5	43	5	5	5	5
14	5	5	5	5	44	5	5	5	5
15	5	5	5	5	45	5	5	5	5
16	5	5	5	5	46	0	0	5	5
17	5	5	5	5	47	5	5	5	5
18	5	5	5	5	48	5	5	5	5
19	5	5	5	5	49	5	5	5	5
20	5	5	5	5	50	5	5	5	5
21	5	5	5	5	51	5	5	5	5
22	5	5	5	5	52	5	5	5	5
23	5	5	5	5	53	5	5	5	5
24	5	5	5	5	54	5	5	5	5
25	5	0	5	5	55	5	5	5	5
26	5	5	5	5	56	5	5	5	5
27	5	5	5	5	57	5	5	5	5
28	5	5	5	5	58	5	5	5	5
29	5	5	5	5	59	5	5	5	5
30	5	5	5	5	60	5	5	5	5

SOURCE LAYOUT SKETCH



HIGHEST OPACITY FOR HIGHEST PERIOD: 5%

OBSERVER'S NAME (PRINT) David Salter

SIGNATURE D Salter DATE

ORGANIZATION TECHNICAL SERVICES, INC.

CERTIFIED BY ETA DATE 6/01

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TECHNICAL SERVICES, INC
2901 DANESE STREET
JACKSONVILLE, FLORIDA 32206
OFFICE 904 - 353 - 5761 FAX 904 - 358 - 2908

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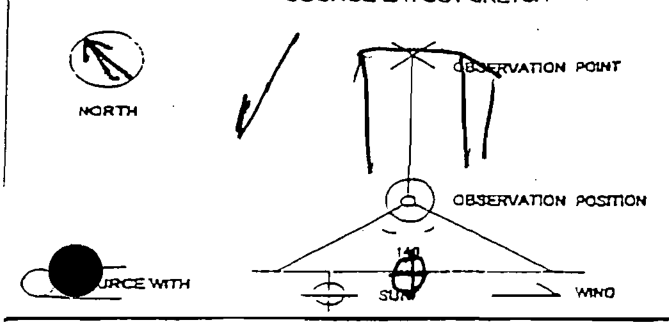
PAGE 1 OF 1
START TIME 1520 END TIME 1620
OBSERVATION DATE 8-23-01 TIME ZONE EST

FACILITY JEA Kennedy
SOURCE KCT-4
ADDRESS
CITY JX STATE FL. ZIP
PHONE SOURCE ID NO.
PROCESS Turbine OPERATING MODE
CONTROL EQUIP. OPERATING MODE
DESCRIBE EMISSION POINT Rectangular Stack ~5'x10'
HEIGHT OF EMISSION POINT START ~40' END ✓
HEIGHT RELATIVE TO OBSERVER START ~15' END ✓
DISTANCE TO EMISSIONS POINT START ~100' END ✓
DIRECTION TO EM. PT. START 40° END ✓
VERTICAL ANGLE TO OBS. PT. START 5° END ✓
DESCRIBE EMISSIONS START Coning END ✓
EMISSION COLOR START Black END ✓
WATER DROPLET PLUME YES [✓ NO] ATTACHED DETACHED
DESCRIBE PLUME BACKGROUND START Sky END ✓
BACKGROUND COLOR START Blue END ✓
SKY CONDITION START Clear END ✓
WIND SPEED START 3-5mph END ✓
WIND DIRECTION START NE END ✓
AMBIENT TEMPERATURE START 90 END ✓
WET BULB TEMP 76
%RH 52%

COMMENTS...... Observer on Ground

SEC/MIN	0	15	30	45	SEC/MIN	0	15	30	45
1	5	5	5	5	31	5	5	5	5
2	5	5	5	5	32	5	5	5	5
3	5	5	5	5	33	5	5	5	5
4	5	5	5	5	34	5	5	5	5
5	5	5	5	5	35	5	5	5	5
6	5	5	5	5	36	5	5	5	5
7	5	5	5	5	37	5	5	5	5
8	5	5	5	5	38	5	5	5	5
9	5	5	5	5	39	5	5	5	5
10	5	5	5	5	40	5	5	5	5
11	5	5	5	5	41	5	5	0	5
12	5	5	5	5	42	5	5	5	5
13	5	5	5	5	43	5	5	5	5
14	5	5	5	5	44	5	5	5	5
15	5	5	5	5	45	5	5	5	5
16	5	5	5	5	46	5	5	5	5
17	5	5	5	5	47	5	5	5	5
18	5	5	5	5	48	5	5	5	5
19	5	5	5	5	49	5	5	5	5
20	5	5	5	5	50	5	5	5	5
21	5	5	5	5	51	5	5	5	5
22	5	5	5	5	52	5	5	5	5
23	5	5	5	5	53	5	5	5	5
24	5	5	5	5	54	5	5	5	5
25	5	5	5	5	55	5	5	5	5
26	5	5	5	5	56	5	5	5	5
27	5	5	5	5	57	5	5	5	5
28	5	5	5	5	58	5	5	5	5
29	5	5	5	5	59	5	5	5	5
30	5	5	5	5	60	5	5	5	5

SOURCE LAYOUT SKETCH



HIGHEST OPACITY FOR HIGHEST PERIOD: 5%
OBSERVER'S NAME (PRINT) David Salter
SIGNATURE D Salter DATE
ORGANIZATION TECHNICAL SERVICES, INC.
CERTIFIED BY ETA DATE 6/01

TECHNICAL SERVICES, INC.
ENVIRONMENTAL CONSULTANTS

VISIBLE EMISSIONS
TEST DATA

FACILITY: Jacksonville Electric Authority

FACILITY ADDRESS:
4215 Talleyrand Avenue
Jacksonville, FL

MAILING ADDRESS:
21 West Church Street
Jacksonville, FL 32202-3139

SOURCE IDENTIFICATION:
Kennedy Generating Station
Combustion Turbine #5

SIC NO.: 49; 4911

COMPANY CONTACT: Mr. Joseph W. Werner, P.E.

TEST CONDUCTED BY: David Salter

TEST DATA AND TIME: June 5, 2001, 1305-1405

COMMENTS:

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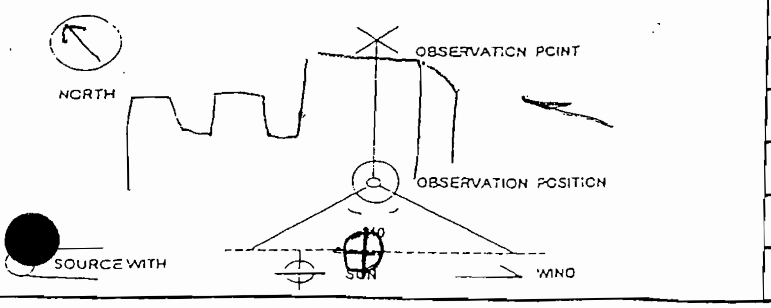
TECHNICAL SERVICES, INC
2901 DANESE STREET
JACKSONVILLE, FLORIDA 32206
OFFICE 904 - 353 - 5761 FAX 904 - 358 - 2908

PAGE 1 OF 1
START TIME 1305 END TIME 1405
OBSERVATION DATE 6-5-01 TIME ZONE EST

FACILITY JEA
SOURCE CT-5
ADDRESS
CITY Jx STATE FL ZIP
PHONE SOURCE ID NO.
PROCESS Turbine OPERATING MODE
CONTROL EQUIP. OPERATING MODE
DESCRIBE EMISSION POINT
rectangular Stack ~12'x5'
HEIGHT OF EMISSION POINT START ~25' END ✓
HEIGHT RELATIVE TO OBSERVER START ~20' END ✓
DISTANCE TO EMISSIONS POINT START ~100 END
DIRECTION TO EM. PT. START 120° END
VERTICAL ANGLE TO OBS. PT. START 5° END ✓
DESCRIBE EMISSIONS START Clear END ✓
EMISSION COLOR START Clear END ✓
WATER DROPLET PLUME YES [✓ NO]
ATTACHED DETACHED
DESCRIBE PLUME BACKGROUND START Sky END ✓
BACKGROUND COLOR START Blue/White END
SKY CONDITION START Scattered Clouds END
WIND SPEED START 3-5mph END ✓
WIND DIRECTION START Southeasterly END ✓
AMBIENT TEMPERATURE START 94 END 95
WET BULB TEMP 80
%RH 54%
COMMENTS...... Observer on Ground + in Shade

SEC/MIN	0	15	30	45	SEC/MIN	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

SOURCE LAYOUT SKETCH



HIGHEST OPACITY FOR HIGHEST PERIOD: 0%
OBSERVER'S NAME (PRINT) David Salter
SIGNATURE DATE 6-5-01
ORGANIZATION TECHNICAL SERVICES, INC.
CERTIFIED BY ETA DATE 12/00

I. Introduction

Ambient Air Services Inc., was subcontrated to test for the NOx, CO, and O2 Rata on the CT-7 Turbine at the JEA Kennedy Generating Station in Jacksonville, FL., on June 7th and 8th. The results appear in the following tables. Analytical data appears in Appendix A.

JACKSONVILLE ELECTRIC AUTHORITY - KENNEDY PLANT CT # 7
NOX AND O2 RATA, CO COMPLIANCE TEST JUNE 7-8, 2001

				CORRECTED TO 15 % O2	
	NOX PPM	CO PPM	O2 %	NOX PPM	CO PPM
RUN 1 Average	8.34	0.66	13.71	6.85	0.28
RUN 2 Average	8.38	0.59	13.77	6.93	0.25
RUN 3 Average	8.21	0.53	13.73	6.76	0.22
RUN 4 Average	8.13	0.64	13.74	6.70	0.27
RUN 5 Average	8.06	0.72	13.71	6.61	0.30
RUN 6 Average	8.02	0.70	13.69	6.57	0.29
RUN 7 Average	8.68	0.47	13.75	7.16	0.20
RUN 8 Average	8.65	0.53	13.74	7.12	0.23
RUN 9 Average	8.62	0.43	13.74	7.10	0.18
RUN 10 Average	8.52	0.50	13.73	7.02	0.21
RUN 11 Average	8.18	0.46	13.68	6.68	0.19
RUN 12 Average	8.22	0.46	13.75	6.78	0.19
Test Average	8.34	0.56	13.73	6.86	0.23

JEA
CEMS Relative Accuracy Test Audit

Kennedy CT 7
June 7-8, 2001

O2 %

RUN	USED	DATE	START	END	RM	CEMS	DIFF	% ERROR
10	y	6/8/01	14:07	14:28	13.628	13.700	-0.070	-0.51
11	y	6/8/01	14:42	15:03	13.610	13.703	-0.090	-0.66
12	y	6/8/01	15:17	15:38	13.599	13.700	-0.100	-0.74
4	y	6/7/01	16:01	16:22	13.740	13.612	0.130	0.95
5	y	6/7/01	16:34	16:55	13.710	13.603	0.110	0.80
6	y	6/7/01	17:05	17:26	13.599	13.700	-0.100	-0.74
7	y	6/8/01	12:21	12:42	13.700	13.623	0.080	0.58
8	y	6/8/01	12:58	13:19	13.700	13.647	0.050	0.36
9	y	6/8/01	13:31	13:52	13.700	13.652	0.050	0.36

Average RM: 13.665
Average CEMS: 13.660
Average DIFF: 0.007
total data points: 9
Standard Deviation: 0.096
t value: 2.306
Confidence Coefficient: 0.073
Relative Accuracy: 0.59

Bias Test: **PASS**
Bias Adjustment Factor: 1.0000

Next Test: ANNUAL

extra runs

1	n	6/7/01	13:35	13:56	13.720	13.700	0.020	0.15
2	n	6/7/01	14:11	14:32	13.770	13.703	0.067	0.49
3	n	6/7/01	15:06	15:27	13.730	13.665	0.065	0.47

JEA
CEMS Relative Accuracy Test Audit

Kennedy CT 7
June 7-8, 2001

NOX ppm

RUN	USED	DATE	START	END	RM	CEMS	DIFF	% ERROR
10	y	6/8/01	14:07	14:28	8.520	8.639	-0.119	-1.40
11	y	6/8/01	14:42	15:03	8.180	8.297	-0.117	-1.43
12	y	6/8/01	15:17	15:38	8.308	8.220	0.088	1.06
4	y	6/7/01	16:01	16:22	8.130	8.920	-0.790	-9.72
5	y	6/7/01	16:34	16:55	8.060	8.844	-0.784	-9.73
6	y	6/7/01	17:05	17:26	8.020	8.842	-0.822	-10.25
7	y	6/8/01	12:21	12:42	8.680	8.680	0.000	0.00
8	y	6/8/01	12:58	13:19	8.640	8.702	-0.062	-0.72
9	y	6/8/01	13:31	13:52	8.690	8.620	0.070	0.81

Average RM: 8.359

Average CEMS: 8.640

Average DIFF: -0.282

total data points: 9

Standard Deviation: 0.394

t value: 2.306

Confidence Coefficient: 0.303

Relative Accuracy: 7.00

Bias Test: PASS

Bias Adjustment Factor: 1.0000

Next Test: ANNUAL

extra runs

1	n	6/7/01	13:35	13:56	8.520	8.639	-0.119	-1.40
2	n	6/7/01	14:11	14:32	8.180	8.297	-0.117	-1.43
3	n	6/7/01	15:06	15:27	8.180	8.308	-0.128	-1.56

JEA
CEMS Relative Accuracy Test Audit

Kennedy CT 7
June 7-8, 2001

NOX lb/mmbtu

RUN	USED	DATE	START	END	RM	CEMS	DIFF	% ERROR
10	y	6/8/01	14:07	14:28	0.025	0.026	-0.001	-3.93
11	y	6/8/01	14:42	15:03	0.024	0.025	-0.001	-4.10
12	y	6/8/01	15:17	15:38	0.025	0.025	0.000	0.00
4	y	6/7/01	16:01	16:22	0.025	0.027	-0.002	-8.10
5	y	6/7/01	16:34	16:55	0.024	0.026	-0.002	-8.21
6	y	6/7/01	17:05	17:26	0.024	0.026	-0.002	-8.26
7	y	6/8/01	12:21	12:42	0.026	0.026	0.000	0.00
8	y	6/8/01	12:58	13:19	0.026	0.026	0.000	0.00
9	y	6/8/01	13:31	13:52	0.026	0.026	0.000	0.00

Average RM:	0.025
Average CEMS:	0.026
Average DIFF:	-0.001
total data points:	9
Standard Deviation:	0.001
t value:	2.306
Confidence Coefficient:	0.001
Relative Accuracy:	6.38

Bias Test:	PASS
Bias Adjustment Factor:	1.0000

Next Test: **ANNUAL**

extra runs

1	n	6/7/01	13:35	13:56	0.025	0.030	-0.005	-18.03
2	n	6/7/01	14:11	14:32	0.026	0.030	-0.004	-16.54
3	n	6/7/01	15:06	15:27	0.025	0.028	-0.003	-11.24

RESULTS and DISCUSSION

An Executive Summary of the results of the tests for NOx, CO, VOC and Visible Emissions from Combustion Turbine KCT 7 are presented below. A more comprehensive summary of the data is contained in Tables I in Tables I through III following. Unit was fired with fuel oil for tests.

EXECUTIVE SUMMARY
Emissions Tests December 20 - 21, 2000
Combustion Turbine KCT 7

Species	Allowable Emissions	Measured Emissions
Nitrogen Oxides, NOx:	42 PPM at 15% O2	29.82 PPM @ 15% O2
	42 PPM (at ISO Conditions)	29.73 PPM @ ISO Conditions
	318 Lbs/Hr	253.17 Lbs/Hr
Carbon Monoxide	20 PPM	2.08 PPM
	97 Lbs/Hr	7.26 Lbs/Hr
Volatile Organic Compounds (VOC)	3.5 PPM	1.11 PPM (as Propane)
	19 Lbs/Hr	6.67 Lbs/Hr (as Propane)
Sulfur Dioxide	98 Lbs/Hr	0.00 Lbs/Hr (Calculated from fuel analysis)

	Allowable Emissions (VISIBLE EMISSIONS)	Measured Emissions
RUN 1	20 % OPACITY	0.0 % OPACITY
RUN 2		0.0 % OPACITY
RUN 3		0.0 % OPACITY
AVERAGE		

This Unit is in compliance with emissions limitations.