

ATTACHMENT LR-EU2-L14
ACID RAIN PERMIT APPLICATION



Farzie Shelton
ENVIRONMENTAL COORDINATOR, CH. E.

Mr. John C Brown (MS5505)
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

December 20, 1995

RE: **ACID RAIN TITLE IV PHASE II APPLICATION
FOR LAKELAND ELECTRIC & WATER UTILITIES**

Dear Mr. Brown:

In compliance with 40 CFR Part 72 and Rule 62-210 F.A.C. we are submitting a revised completed form 62-210.900(1)(a) and three copies of same for our Larsen Power Plant.

Additionally, enclosed you will find a copy of **Certificate of Representation (OMB No. 2060-0221)** for each respective facility together with **Title IV Compliance Plan**.

With this submittal we are hoping to have satisfied all the requirements of Acid Rain Phase II Permit Application.

If you should have any questions, please do not hesitate to contact me at (941) 499-6603.

Sincerely

Farzie Shelton (Ms)
Environmental Division

Enc.



Certificate of Representation

Page 1

For more information, see instructions and refer to 40 CFR 72.24

This submission is: ☒ New ☐ Revised

STEP 1

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

Plant Name	C. D. McIntosh Jr.	State	FL	676 ORIS Code
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STEP 2

Enter requested
information for the
designated
representative

Name		Ronald W. Tomlin, Assistant Managing Director	
Address		Lakeland Electric & Water Utilities 501 East Lemon Street Lakeland, Florida 33801-5050	
Phone Number	813/499-8474	Fax Number	813/499-6362

STEP 3

Enter requested
information for the
alternate designated
representative
(optional)

Name		Timothy C. Bates, Plant Manager	
Address		C. D. McIntosh Power Plant 3030 East Lake Parker Drive Lakeland, Florida 33805-9513	
Phone Number	813/499-6601	Fax Number	813/499-6688

STEP 4

Complete Step 5, read
the certifications and
sign and date

I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the affected source and each affected unit at the source.

I certify that I have given notice of the agreement, selecting me as the designated representative or alternate designated representative, as applicable for the affected source and each affected unit at the source identified in this certificate of representation, daily for a period of one week in a newspaper of general circulation in the area where the source is located or in a State publication designed to give general public notice.

I certify that I have all necessary authority to carry out my duties and responsibilities under the Acid Rain Program on behalf of the owners and operators of the affected source and of each affected unit at the source and that each such owner and operator shall be fully bound by my actions, inactions, or submissions.

I certify that I shall abide by any fiduciary responsibilities imposed by the agreement by which I was selected as designated representative or alternate designated representative, as applicable.

I certify that the owners and operators of the affected source and of each affected unit at the source shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, an affected unit, or where a utility or industrial customer purchases power from an affected unit under life-of-the-unit, firm power contractual arrangements, I certify that:

I have given a written notice of my selection as the designated representative or alternate designated representative, as applicable, and of the agreement by which I was selected to each owner and operator of the affected source and of each affected unit at the source; and

Allowances and the proceeds of transactions involving allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement or, if such multiple holders have expressly provided for a different distribution of allowances by contract, that allowances and the proceeds of transactions involving allowances will be deemed to be held or distributed in accordance with the contract.

The agreement by which I was selected as the alternate designated representative includes a procedure for the owners and operators of the source and affected units at the source to authorize the alternate designated representative to act in lieu of the designated representative



December 14, 1995

Lakeland Electric & water Utilities Title IV Compliance Plan

Lakeland Electric & Water utilities will hold sufficient SO₂ allowances to cover all SO₂ emissions for the generating units listed below. If it becomes apparent that Lakeland Electric & Water utilities will have insufficient SO₂ allowances, Lakeland Electric & Water Utilities will purchase additional allowances on the open market, or switch to lower sulfur content fuel in order to cover any shortfall.

PLANT NAME	BOILER ID	ORIS CODE
C.D. MCINTOSH.Jr,	1	676
	2	676
	3	676
LARSEN MEMORIAL	7	675
	8	675

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

Larsen Memorial Power Plant, FL, 675

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

Compliance Plan				
a	b	c	d	e
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
7	Yes	No		
8	Yes	No	11/92	1/1/96
	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.

Plant Name (from Step 1)
Larsen Memorial Power Plant

STEP 4
 Read the standard requirements and certification, enter the name of the designated representative, 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)
Larsen Memorial Power Plant

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 *Charles D. Garing, Plant Manager*

Signature

Charles D. Garing

Date

12/20/95

STEP 5 (optional)
Enter the source AIRS
and FINDS identification
numbers, if known

AIRS
FINDS

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L 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. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

**A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)****Type of Emissions Unit Addressed in This Section**

1. 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.

2. Single Process, Group of Processes, or Fugitive Only? 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.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Combined Cycle Unit 8		
2. Emissions Unit Identification Number: <input type="checkbox"/> No Corresponding ID <input type="checkbox"/> Unknown 008		
3. Emissions Unit Status Code: A	4. Acid Rain Unit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Emissions Unit Major Group SIC Code: 49
6. Emissions Unit Comment (limit to 500 characters): Initial startup date is the unit's commercial in-service date. Emission unit is a combined cycle unit. Steam cycle is rated at 30 MW.		

Emissions Unit Control Equipment Information**A.**

1. Description (limit to 200 characters):

Water Injection2. Control Device or Method Code: **28****B.**

1. Description (limit to 200 characters):

2. Control Device or Method Code:

C.

1. Description (limit to 200 characters):

2. Control Device or Method Code:

C. EMISSIONS UNIT DETAIL INFORMATION (Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date: 7 Jul 1992		
2. Long-term Reserve Shutdown Date:		
3. Package Unit: <div style="display: flex; justify-content: space-between;"> Manufacturer: General Electric Model Number: Frame 7EA </div>		
4. Generator Nameplate Rating: 88 MW		
5. Incinerator Information: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div>Dwell Temperature:</div> <div>°F</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div>Dwell Time:</div> <div>seconds</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div>Incinerator Afterburner Temperature:</div> <div>°F</div> </div>		

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: 1,055 mmBtu/hr		
2. Maximum Incineration Rate: lbs/hr tons/day		
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): Maximum heat input based on HHV for natural gas. Heat input for residual oil heat input is 1,040 MMBtu/hr (HHV).		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:		
hours/day	days/week	
weeks/yr	8,760	hours/yr

**D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)**

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

Not Applicable

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

See Attachment LR-EU3-D

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: See Att. LR-EU3-L1	
2. Emission Point Type Code: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4	
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): Emission unit can exhaust through either a by-pass stack or heat recovery steam generator stack.	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:	
5. Discharge Type Code: <input type="checkbox"/> D <input type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input checked="" type="checkbox"/> V <input type="checkbox"/> W	
6. Stack Height:	155 feet
7. Exit Diameter:	16 feet
8. Exit Temperature:	481 °F

9. Actual Volumetric Flow Rate:	1,034,053 acfm
10. Percent Water Vapor:	%
11. Maximum Dry Standard Flow Rate:	dscfm
12. Nonstack Emission Point Height:	feet
13. Emission Point UTM Coordinates:	
Zone: 17	East (km): 409.0 North (km): 3102.8
14. Emission Point Comment (limit to 200 characters):	
Stack parameters shown for HRSG stack oil firing. By-pass stack parameters: Height: 100 ft; diameter: 17.6 ft(equiv diameter-stack is rectangular 18.3' x 13.3'); temp: 950°F; flow: 1,549,432 acfm.	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)**Segment Description and Rate:** Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Distillate oil	
2. Source Classification Code (SCC): 2-01-001-01	
3. SCC Units: 1000 gallons	
4. Maximum Hourly Rate: 7.34	5. Maximum Annual Rate: 23,915
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: 0.2	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 150	
10. Segment Comment (limit to 200 characters): Maximum hourly rate based on maximum heat input for oil firing; annual rate based on construction permit limit.	

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Natural gas	
2. Source Classification Code (SCC): 2-01-002-01	
3. SCC Units: Million Cubic Feet	
4. Maximum Hourly Rate: 1.03	5. Maximum Annual Rate: 9,025
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 1,024	
10. Segment Comment (limit to 200 characters): Maximum Percent Sulfur: 0.003. Maximum hourly rate based on maximum heat input.	

**G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM			EL
SO2			EL
NOX	028		EL
CO			EL
VOC			EL
H114			EL
PB			EL
H021			EL
SAM			EL
PM10			EL

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted: PM		
2. Total Percent Efficiency of Control:		%
3. Potential Emissions:	26 lb/hour	37 tons/year
4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr		
6. Emission Factor: 0.025 lb/MMBtu Reference: AC53-190437/PSDFL166		
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5		
8. Calculation of Emissions (limit to 600 characters): 1,040 MMBtu/hr x 0.025 lb/MMBtu = 26 lb/hr. 22 TPY x 2/3 (gas) + 22 TPY (oil) = 36.7 TPY		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Hourly emissions based on oil firing. Annual emissions based on 2,920 hours (1/3 of year) of oil firing and 5,840 hours (2/3 of year) of natural gas firing (AC53-190437/PSD-FL-166).		

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
Particulate Matter - Total

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 0.025 lb/MMBtu;22 TPY		
4. Equivalent Allowable Emissions:	26 lb/hour	22 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Meth 5/17 if > 10% op & >400hr/yr oil		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for oil firing. Does not include allowance for excess emissions for startup, shutdown and malfunction [FDEP Rule 62-210.700(1)].		

B.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 0.006 lb/MMBtu;22 TPY		
4. Equivalent Allowable Emissions:	6.3 lb/hour	22 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for natural gas firing. Does not include allowance for excess emissions for startup, shutdown and malfunction [FDEP Rule 62-210.700(1)]		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted: SO2	
2. Total Percent Efficiency of Control:	%
3. Potential Emissions:	211.4 lb/hour 317.2 tons/year
4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr	
6. Emission Factor: 0.2 % sulfur fuel Reference: AC53-190437/PSDFL166	
7. Emissions Method Code: <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	
8. Calculation of Emissions (limit to 600 characters): 52,846 lb/hr x 0.002 lb/lb fuel x 2 lb SO2/lb S = 211.4 lb/hr (oil with 19,680 Btu/lb); 307 TPY (oil) + 8.6 x 2/3 (gas) = 317.2 TPY	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Hourly emissions based on oil firing. Annual emissions based on 2,920 hours of oil firing and 5,840 hours of natural gas firing by permit limit.	

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
Sulfur Dioxide

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 0.2 % sulfur fuel		
4. Equivalent Allowable Emissions:	211 lb/hour	307 tons/year
5. Method of Compliance (limit to 60 characters): Fuel analysis; Method PARR 1760; D-240		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for oil firing. Requested Allowable Emissions/Units: 307 TPY.		

B.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 8.6 TPY		
4. Equivalent Allowable Emissions:	3 lb/hour	8.6 tons/year
5. Method of Compliance (limit to 60 characters): Custom fuel monitoring; Fuel supplier		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for gas firing. See LR-EU3-L12.		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: NOX	
2. Total Percent Efficiency of Control:	%
3. Potential Emissions:	176 lb/hour 563 tons/year
4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive/Other Emissions:	
[<input type="checkbox"/>] 1 [<input type="checkbox"/>] 2 [<input type="checkbox"/>] 3 _____ to _____ tons/yr	
6. Emission Factor:	
See Comment	
Reference: AC53-190437/PSDFL166	
7. Emissions Method Code:	
[<input checked="" type="checkbox"/>] 0 [<input type="checkbox"/>] 1 [<input type="checkbox"/>] 2 [<input type="checkbox"/>] 3 [<input type="checkbox"/>] 4 [<input type="checkbox"/>] 5	
8. Calculation of Emissions (limit to 600 characters):	
<p>FORMULA: Nitrogen Oxides (lb/hr) = NOx(ppm) x {[20.9 x (1 - Moisture(%)/100)] - Oxygen(%)} x 2116.8 x Volume flow (acfm) x 46 (mole. wgt NOx) x 60 min/hr ÷ [1545 x (CT temp.(°F) + 460°F) x 5.9 x 1,000,000 (ppm)]. Basis, ppmvd @15% O2: 42.0; Moisture (%): 7.25; Oxygen (%): 13.44; Volume Flow (acfm): 1,549,432; Temperature (°F): 950; lb/hr: 175.9. CALCULATION: 425 TPY x 2/3 (gas) + 244 (oil) = 563 TPY.</p>	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):	
<p>Emission Factor: 42 ppmvd, 25 ppmvd corrected to 15% O2 for oil and gas. Hourly emissions based on oil firing. Annual emissions based on 2,920 hours of oil firing and 5,840 hours of natural gas firing</p>	

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
Nitrogen Oxides

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 42 ppmvd; 244 TPY		
4. Equivalent Allowable Emissions:	176 lb/hour	244 tons/year
5. Method of Compliance (limit to 60 characters): Annual compliance test; EPA Method 20		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units corrected to 15% O2. Established as BACT for oil firing; testing required if > 400hrs/yr.		

B.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 25 ppmvd; 425 TPY		
4. Equivalent Allowable Emissions:	105 lb/hour	425 tons/year
5. Method of Compliance (limit to 60 characters): Annual compliance test; EPA Method 20		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Requested Allowable Emissions and Units corrected to 15% O2. Established as BACT for gas firing.		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted:	CO	
2. Total Percent Efficiency of Control:	%	
3. Potential Emissions:	59 lb/hour	254 tons/year
4. Synthetically Limited?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive/Other Emissions:	[] 1 [] 2 [] 3 _____ to _____ tons/yr	
6. Emission Factor:	25 ppmvd	
Reference:	AC53-190437/PSDFL166	
7. Emissions Method Code:	<input checked="" type="checkbox"/> 0 [] 1 [] 2 [] 3 [] 4 [] 5	
8. Calculation of Emissions (limit to 600 characters):	<p>FORMULA: Carbon Monoxide (lb/hr) = CO(ppm) x [1 - Moisture(%) / 100] x 2116.8 lb/ft² x Volume flow (acfm) x 28 (mole. wgt CO) x 60 min/hr ÷ [1545 x (CT temp.(°F) + 460°F) x 1,000,000 (adj. for ppm)]. Basis, ppmvd: 25; Moisture (%): 7.25; Volume Flow (acfm): 1,549,432; Temperature (°F): 950; lb/hr: 58.6. CALCULATION: 232 TPY x 2/3 (gas) + 79 TPY (oil) = 254 TPY.</p>	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):	<p>Hourly emissions based on oil firing. Annual emissions based on 2,920 hours of oil firing and 5,840 hours of natural gas firing.</p>	

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8

Carbon Monoxide

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 79 tons/year		
4. Equivalent Allowable Emissions:	59 lb/hour	79 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for oil firing.		

B.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 232 tons/year		
4. Equivalent Allowable Emissions:	58 lb/hour	232 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for gas firing		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted: VOC		
2. Total Percent Efficiency of Control:		%
3. Potential Emissions:	7 lb/hour	12.3 tons/year
4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr		
6. Emission Factor: See Comment Reference: AC53-190437/PSDFL166		
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5		
8. Calculation of Emissions (limit to 600 characters): FORMULA: VOCs (lb/hr)= VOC(ppm) x [1 - Moisture(%) / 100] x 2116.8 lb/ft³ x Volume flow (acfm) x 16 (mole. wgt as methane) x 60 min/hr ÷ [1545 x (CT temp.(°F) + 460°F) x 1,000,000 (adj. for ppm)]. Basis, ppmvd: 3.5; Moisture (%): 7.25; Volume Flow (acfm): 1,549,432; Temperature (°F): 950; lb/hr: 4.7. CALCULATION: 9 TPY X 2/3 (gas) + 6.7 TPY (oil) = 12.3 TPY.		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Emission Factor: 3.5 ppmvd for oil; 1.4 ppmvd for gas. Hourly emissions based on oil firing. Annual emissions based on 2,920 hours of oil firing and 5,840 hours of natural gas firing.		

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
Volatile Organic Compounds

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 9 tons/year		
4. Equivalent Allowable Emissions:	4.7 lb/hour	9 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Gas firing; Annual emissions established as a construction permit limit.		

B.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 6.7 tons/year		
4. Equivalent Allowable Emissions:	1.9 lb/hour	6.7 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Oil firing; Annual emissions established as a construction permit limit		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted: H114	
2. Total Percent Efficiency of Control:	%
3. Potential Emissions:	lb/hour 0.003 tons/year
4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr	
6. Emission Factor: 3 lb/10¹² Btu Reference: AC53-190437/PSDFL166	
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	
8. Calculation of Emissions (limit to 600 characters): 	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Emissions estimate based on oil firing. This limit requested to be deleted. 	

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
Mercury Compounds

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	0.003 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as construction permit limit; this limit is requested to be deleted.		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted: PB	
2. Total Percent Efficiency of Control: %	
3. Potential Emissions:	lb/hour 0.03 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr	
6. Emission Factor: 0.000028 lb/MMBtu Reference: AC53-190437/PSDFL166	
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	
8. Calculation of Emissions (limit to 600 characters):	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Based on oil firing; this limit requested to be deleted.	

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
Lead - Total

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	0.03 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as a construction permit limit for oil firing; this limit requested to be deleted;		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted: H021	
2. Total Percent Efficiency of Control:	%
3. Potential Emissions:	lb/hour 0.003 tons/year
4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr	
6. Emission Factor: 0.000003 lb/MMBtu Reference: AC53-190437/PSDFL166	
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	
8. Calculation of Emissions (limit to 600 characters): 	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Based on oil firing; this limit requested to be deleted.	

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
Beryllium Compounds

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	0.003 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for oil firing; this limit requested to be deleted.		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION (Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Pollutant Detail Information:

1. Pollutant Emitted: SAM		
2. Total Percent Efficiency of Control:		%
3. Potential Emissions:	lb/hour	tons/year
4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions:		
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 _____ to _____ tons/yr
6. Emission Factor:		0.2 %sulfur oil
Reference: AC53-190437/PSDFL166		
7. Emissions Method Code:		
<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
8. Calculation of Emissions (limit to 600 characters):		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters):		
This limit requested to be deleted.		

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
Sulfuric Acid Mist

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT limit; this limit requested to be deleted.		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted: PM10		
2. Total Percent Efficiency of Control:		%
3. Potential Emissions:	26 lb/hour	37 tons/year
4. Synthetically Limited? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr		
6. Emission Factor: 0.025 lb/MMBtu Reference: AC53-190437/PSDFL166		
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5		
8. Calculation of Emissions (limit to 600 characters): 1,040 MMBtu/hr x 0.025 lb/MMBtu = 26 lb/hr. 22 TPY x 2/3 (gas) + 22 TPY (oil) = 36.7 TPY.		
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Hourly emissions based on oil firing. Annual emissions based on oil and natural gas firing (AC53-190437/PSD-FL-166).		

Emissions Unit Information Section 3 of 5
Allowable Emissions (Pollutant identified on front page)

Combined Cycle Unit 8
 Particulate Matter - PM10

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 0.025 lb/MMBtu;22 TPY		
4. Equivalent Allowable Emissions:	26 lb/hour	22 tons/year
5. Method of Compliance (limit to 60 characters): Annual stack test; EPA Method 5 and 17		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for oil firing. Does not include allowance for excess emissions for startup, shutdown and malfunction [FDEP Rule 62-210.700(1)].		

B.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 0.006 lb/MMBtu;22 TPY		
4. Equivalent Allowable Emissions:	6.3 lb/hour	22 tons/year
5. Method of Compliance (limit to 60 characters): None		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Established as BACT for natural gas firing. Does not include allowance for excess emissions for startup, shutdown and malfunction [FDEP Rule 62-210.700(1)].		

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)**Visible Emissions Limitations:** Visible Emissions Limitation 1 of 2

1.	Visible Emissions Subtype: VE10
2.	Basis for Allowable Opacity: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other
3.	Requested Allowable Opacity Normal Conditions: 10 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: Annual VE testing; EPA Method 9
5.	Visible Emissions Comment (limit to 200 characters): Established as BACT limit

Visible Emissions Limitations: Visible Emissions Limitation 2 of 2

1.	Visible Emissions Subtype: VE99
2.	Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: 100 % Maximum Period of Excess Opacity Allowed: 60 min/hour
4.	Method of Compliance: None
5.	Visible Emissions Comment (limit to 200 characters): FDEP Rule 62-210.700(1). Allowed for 2 hours (120 minutes) per 24-hour period for start-up, shut-down and malfunction.

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)**Continuous Monitoring System** Continuous Monitor 1 of 4

1. Parameter Code: EM	2. Pollutant(s): NOX
3. CMS Requirement: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other	
4. Monitor Information: Monitor Manufacturer: Advanced Pollution Inst. Model Number: 252 Serial Number: 132	
5. Installation Date: 28 Nov 1994	
6. Performance Specification Test Date: 12 Dec 1995	
7. Continuous Monitor Comment (limit to 200 characters): CEM required pursuant to 40 CFR Part 75	

Continuous Monitoring System Continuous Monitor 2 of 4

1. Parameter Code: EM	2. Pollutant(s): NOX
3. CMS Requirement: <input type="checkbox"/> Rule <input checked="" type="checkbox"/> Other	
4. Monitor Information: Monitor Manufacturer: Advanced Pollution Inst. Model Number: 252 Serial Number: 120	
5. Installation Date: 28 Nov 1994	
6. Performance Specification Test Date: 12 Dec 1995	
7. Continuous Monitor Comment (limit to 200 characters): Redundant backup	

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)**Continuous Monitoring System** Continuous Monitor 3 of 4

1. Parameter Code: O2	2. Pollutant(s):
3. CMS Requirement: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other	
4. Monitor Information: Monitor Manufacturer: Graseby STI Model Number: DP0802 Serial Number: 1511-1-8	
5. Installation Date: 28 Nov 1994	
6. Performance Specification Test Date: 12 Dec 1995	
7. Continuous Monitor Comment (limit to 200 characters): Required pursuant to 40 CFR Part 75 for dilution with NOx monitors.	

Continuous Monitoring System Continuous Monitor 4 of 4

1. Parameter Code: WTF	2. Pollutant(s):
3. CMS Requirement: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other	
4. Monitor Information: Monitor Manufacturer: Model Number: Serial Number:	
5. Installation Date: 07 Jul 1992	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters): Required by 40 CFR 60.334, WTF ratio monitored by CT control system as part of DCS. Pollutant emitted = NOx.	

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT
TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)**

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

- ☒ [X] The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- ☐ [] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☐ [] The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☐ [] For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- ☐ [] None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

- ☒ The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.
- ☐ For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☐ None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code:			
PM	<input checked="" type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
SO ₂	<input checked="" type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
NO ₂	<input checked="" type="checkbox"/> C	<input type="checkbox"/> E	<input type="checkbox"/> Unknown
4. Baseline Emissions:			
PM	lb/hour	tons/year	
SO ₂	lb/hour	tons/year	
NO ₂		tons/year	
5. PSD Comment (limit to 200 characters):			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**Supplemental Requirements for All Applications**

1.	Process Flow Diagram		
<input checked="" type="checkbox"/>	Attached, Document ID: <u>LR-EU3-L1</u>	<input type="checkbox"/>	Waiver Requested
<input type="checkbox"/>	Not Applicable		
2.	Fuel Analysis or Specification		
<input checked="" type="checkbox"/>	Attached, Document ID: <u>LR-EU3-L2</u>	<input type="checkbox"/>	Waiver Requested
<input type="checkbox"/>	Not Applicable		
3.	Detailed Description of Control Equipment		
<input checked="" type="checkbox"/>	Attached, Document ID: <u>LR-EU3-L3</u>	<input type="checkbox"/>	Waiver Requested
<input type="checkbox"/>	Not Applicable		
4.	Description of Stack Sampling Facilities		
<input checked="" type="checkbox"/>	Attached, Document ID: <u>LR-EU3-L4</u>	<input type="checkbox"/>	Waiver Requested
<input type="checkbox"/>	Not Applicable		
5.	Compliance Test Report		
<input type="checkbox"/>	Attached, Document ID: _____	<input type="checkbox"/>	Not Applicable
<input checked="" type="checkbox"/>	Previously Submitted, Date: _____		
6.	Procedures for Startup and Shutdown		
<input checked="" type="checkbox"/>	Attached, Document ID: <u>LR-EU3-L6</u>	<input type="checkbox"/>	Not Applicable
7.	Operation and Maintenance Plan		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable
8.	Supplemental Information for Construction Permit Application		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable
9.	Other Information Required by Rule or Statute		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation
<input checked="" type="checkbox"/> Attached, Document ID: <u>LR-EU3-L10</u> <input type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading)
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements
<input checked="" type="checkbox"/> Attached, Document ID: <u>LR-EU3-L12</u> <input type="checkbox"/> Not Applicable
13. Compliance Assurance Monitoring Plan
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
14. Acid Rain Permit Application (Hard Copy Required)
<input checked="" type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: <u>LR-EU2-L14</u>
<input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____
<input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____
<input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____
<input type="checkbox"/> Not Applicable

ATTACHMENT LR-EU3-D
EMISSIONS UNIT REGULATIONS

ATTACHMENT LR-EU3-D

Applicable Requirements Listing - Power Plants Acid Rain Units

EMISSION UNIT ID: EU3 - Larsen Plant - Combined Cycle Unit 8

FDEP Rules:

Air Pollution Control-General Provisions:

62-204.800(7)(b)37. (State Only) - NSPS Subpart GG

62-204.800(7)(c) (State Only) - NSPS authority

62-204.800(7)(d)(State Only) - NSPS General Provisions

62-204.800(12) (State Only) - Acid Rain Program

62-204.800(13) (State Only) - Allowances

62-204.800(14) (State Only) - Acid Rain Program Monitoring

62-204.800(16) (State Only) - Excess Emissions (Potentially applicable over term of permit)

Stationary Sources-General:

62-210.650 - Circumvention; EUs with control device

62-210.700(1) - Excess Emissions;

62-210.700(4) - Excess Emissions; poor maintenance

62-210.700(6) - Excess Emissions; notification

Acid Rain:

62-214.300 - All Acid Rain Units (Applicability)

62-214.320(1)(a),(2) - All Acid Rain Units (Application Shield)

62-214.330(1)(a)1. - Compliance Options (if 214.430)

62-214.340 - Exemptions (new units, retired units)

62-214.350(2);(3);(6) - All Acid Rain Units (Certification)

62-214.370 - All Acid Rain Units

(Revisions; correction; potentially applicable if a need arises)

62-214.430 - All Acid Rain Units (Compliance Options-if required)

Stationary Sources-Emission Standards:

62-296.320(4)(b)(State Only) - CTs/Diesel Units

Stationary Sources-Emission Monitoring (where stack test is required):

62-297.310(1) - All Units (Test Runs-Mass Emission)

62-297.310(2)(b) - All Units (Operating Rate; other than CTs;no CT)

62-297.310(3) - All Units (Calculation of Emission)

62-297.310(4)(a) - All Units (Applicable Test Procedures;Sampling time)

62-297.310(4)(b) - All Units (Sample Volume)

62-297.310(4)(c) - All Units (Required Flow Rate Range-PM/H2SO4/F)

62-297.310(4)(d) - All Units (Calibration)

62-297.310(4)(e) - All Units (EPA Method 5-only)

62-297.310(5) - All Units (Determination of Process Variables)

- | | |
|---------------------|---|
| 62-297.310(6)(a) | - All Units (Permanent Test Facilities-general) |
| 62-297.310(6)(c) | - All Units (Sampling Ports) |
| 62-297.310(6)(d) | - All Units (Work Platforms) |
| 62-297.310(6)(e) | - All Units (Access) |
| 62-297.310(6)(f) | - All Units (Electrical Power) |
| 62-297.310(6)(g) | - All Units (Equipment Support) |
| 62-297.310(7)(a)1. | - Applies mainly to CTs/Diesels |
| 62-297.310(7)(a)2. | - FFSG excess emissions |
| 62-297.310(7)(a)3. | - Permit Renewal Test Required |
| 62-297.310(7)(a)4.a | - Annual Test |
| 62-297.310(7)(a)5. | - PM exemption if < 400 hrs/yr |
| 62-297.310(7)(a)6. | - PM FFSG semi annual test required if > 200 hrs/yr |
| 62-297.310(7)(a)7. | - PM quarterly monitoring if > 100 hrs/yr |
| 62-297.310(7)(a)9. | - FDEP Notification - 15 days |
| 62-297.310(7)(c) | - Waiver of Compliance Tests (Fuel Sampling) |
| 62-297.310(8) | - Test Reports |

Federal Rules:

NSPS Subpart GG:

- | | |
|---------------------|--|
| 40 CFR 60.332(a)(1) | - NOx for Electric Utility CTs |
| 40 CFR 60.332(a)(3) | - NOx for Electric Utility CTs |
| 40 CFR 60.333 | - SO2 limits |
| 40 CFR 60.334 | - Monitoring of Operations (Custom Monitoring for Gas) |
| 40 CFR 60.335 | - Test Methods |

NSPS General Requirements:

- | | |
|--------------------|---|
| 40 CFR 60.7(a)(4) | - Notification and Recordkeeping (Physical/Operational Cycle) |
| 40 CFR 60.7(b) | - Notification and Recordkeeping (startup/shutdown/malfunction) |
| 40 CFR 60.7(c) | - Notification and Recordkeeping (startup/shutdown/malfunction) |
| 40 CFR 60.7(d) | - Notification and Recordkeeping (startup/shutdown/malfunction) |
| 40 CFR 60.7(f) | - Notification and Recordkeeping (maintain records-2 yrs) |
| 40 CFR 60.8(c) | - Performance Tests (representative conditions) |
| 40 CFR 60.8(e) | - Provide Stack Sampling Facilities |
| 40 CFR 60.8(f) | - Test Runs |
| 40 CFR 60.11(a) | - Compliance (ref. S. 60.8 or Subpart; other than opacity) |
| 40 CFR 60.11(b) | - Compliance (opacity determined EPA Method 9) |
| 40 CFR 60.11(c) | - Compliance (opacity; excludes startup/shutdown/malfunction) |
| 40 CFR 60.11(d) | - Compliance (maintain air pollution control equip.) |
| 40 CFR 60.11(e)(2) | - Compliance (opacity; ref. S. 60.8) |
| 40 CFR 60.12 | - Circumvention |
| 40 CFR 60.13(a) | - Monitoring (Appendix B; Appendix F) |
| 40 CFR 60.13(c) | - Monitoring (Opacity COMS) |
| 40 CFR 60.13(d)(1) | - Monitoring (CEMS; span, drift, etc.) |
| 40 CFR 60.13(d)(2) | - Monitoring (COMS; span, system check) |
| 40 CFR 60.13(e) | - Monitoring (frequency of operation) |
| 40 CFR 60.13(f) | - Monitoring (frequency of operation) |

40 CFR 60.13(h)

- Monitoring (COMS; data requirements)

Acid Rain-Permits:

40 CFR 72.9(a)
40 CFR 72.9(b)
40 CFR 72.9(c)(1)
40 CFR 72.9(c)(2)
40 CFR 72.9(c)(3)(iii)
40 CFR 72.9(c)(4)
40 CFR 72.9(c)(5)
40 CFR 72.9(d)
40 CFR 72.9(e)
40 CFR 72.9(f)
40 CFR 72.9(g)
40 CFR 72.20(a)
40 CFR 72.20(b)
40 CFR 72.20(c)
40 CFR 72.21
40 CFR 72.22
40 CFR 72.23
40 CFR 72.24
40 CFR 72.30(a)
40 CFR 72.30(b)(2)
40 CFR 72.30(c)
40 CFR 72.30(d)
40 CFR 72.31
40 CFR 72.32
40 CFR 72.33(b)
40 CFR 72.33(c)

- Permit Requirements
- Monitoring Requirements
- SO2 Allowances-hold allowances
- SO2 Allowances-violation
- SO2 Allowances-Phase II Units (listed)
- SO2 Allowances-allowances held in ATS
- SO2 Allowances-no deduction for 72.9(c)(1)(i)
- NOx Requirements
- Excess Emission Requirements
- Recordkeeping and Reporting
- Liability
- Designated Representative; required
- Designated Representative; legally binding
- Designated Representative; certification requirements
- Submissions
- Alternate Designated Representative
- Changing representatives; owners
- Certificate of representation
- Requirements to Apply (operate)
- Requirements to Apply (Phase II-Complete)
- Requirements to Apply (reapply before expiration)
- Requirements to Apply (submittal requirements)
- Information Requirements; Acid Rain Applications
- Permit Application Shield
- Dispatch System ID;unit/system ID
- Dispatch System ID;ID requirements

40 CFR 72.33(d)
40 CFR 72.40(a)
40 CFR 72.40(b)
40 CFR 72.40(c)
40 CFR 72.40(d)
40 CFR 72.51
40 CFR 72.90

- Dispatch System ID;ID change
- General; compliance plan
- General; multi-unit compliance options
- General; conditional approval
- General; termination of compliance options
- Permit Shield
- Annual Compliance Certification

Allowances:

40 CFR 73.33(a),(c)
40 CFR 73.35(c)(1)

- Authorized account representative
- Compliance: ID of allowances by serial number

Monitoring Part 75:

40 CFR 75.4
40 CFR 75.5
40 CFR 75.10(a)(1)
40 CFR 75.10(a)(2)
40 CFR 75.10(a)(3)(iii)

- Compliance Dates;
- Prohibitions
- Primary Measurement; SO2;
- Primary Measurement; NOx;
- Primary Measurement; CO2; O2 monitor

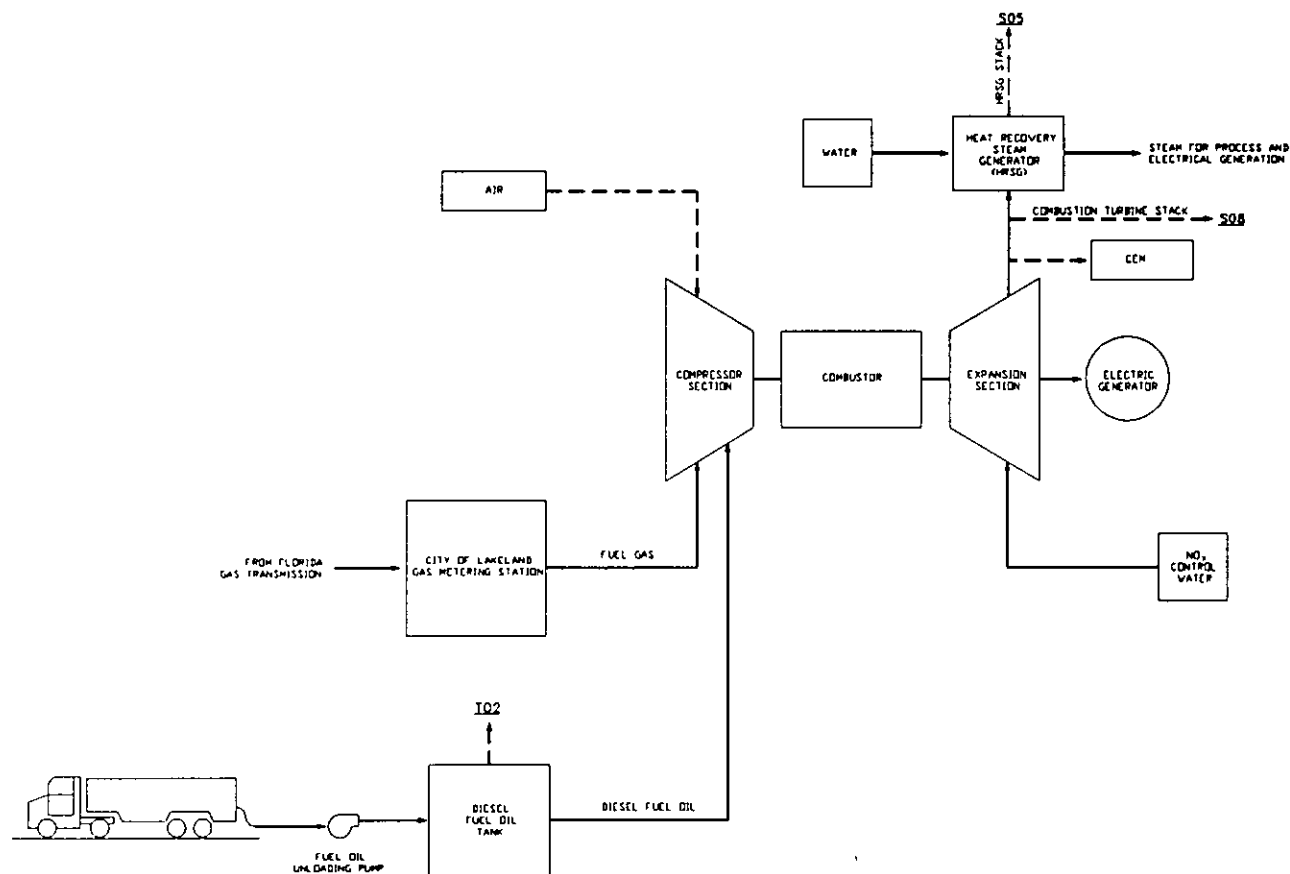
- 40 CFR 75.10(b) - Primary Measurement; Performance Requirements
- 40 CFR 75.10(c) - Primary Measurement; Heat Input; Appendix F
- 40 CFR 75.10(e) - Primary Measurement; Optional Backup Monitor
- 40 CFR 75.10(f) - Primary Measurement; Minimum Measurement
- 40 CFR 75.10(g) - Primary Measurement; Minimum Recording
- 40 CFR 75.11(d) - SO₂ Monitoring; Gas- and Oil-fired units
- 40 CFR 75.11(e) - SO₂ Monitoring; Gaseous firing
- 40 CFR 75.12(a) - NO_x Monitoring; Coal; Non-peaking oil/gas units
- 40 CFR 75.12(b) - NO_x Monitoring; Determination of NO_x emission rate;
Appendix F
- 40 CFR 75.13(b) - CO₂ Monitoring; Appendix G
- 40 CFR 75.13(c) - CO₂ Monitoring; Appendix F
- 40 CFR 75.14(c) - Opacity Monitoring; Gas units; exemption
- 40 CFR 75.20(a) - Initial Certification Approval Process; Loss of Certification
- 40 CFR 75.20(b) - Recertification Procedures (if recertification necessary)
- 40 CFR 75.20(c) - Certification Procedures (if recertification necessary)
- 40 CFR 75.20(d) - Recertification Backup/portable monitor
- 40 CFR 75.20(f) - Alternate Monitoring system
- 40 CFR 75.21(a) - QA/QC; CEMS; Appendix B (Suspended 7/17/95-12/31/96)
- 40 CFR 75.21(c) - QA/QC; Calibration Gases
- 40 CFR 75.21(d) - QA/QC; Notification of RATA
- 40 CFR 75.21(e) - QA/QC; Audits
- 40 CFR 75.21(f) - QA/QC; CEMS (Effective 7/17/96-12/31/96)
- 40 CFR 75.22 - Reference Methods
- 40 CFR 75.24 - Out-of-Control Periods; CEMS
- 40 CFR 75.30(a)(3) - General Missing Data Procedures; NO_x
- 40 CFR 75.30(a)(4) - General Missing Data Procedures; SO₂
- 40 CFR 75.30(b) - General Missing Data Procedures; certified backup monitor
- 40 CFR 75.30(c) - General Missing Data Procedures; certified backup monitor
- 40 CFR 75.30(d) - General Missing Data Procedures; SO₂ (optional before 1/1/97)
- 40 CFR 75.30(e) - General Missing Data Procedures; bypass/multiple stacks
- 40 CFR 75.31 - Initial Missing Data Procedures (new/re-certified CMS)
- 40 CFR 75.32 - Monitoring Data Availability for Missing Data
- 40 CFR 75.33 - Standard Missing Data Procedures
- 40 CFR 75.36 - Missing Data for Heat Input
- 40 CFR 75.40 - Alternate Monitoring Systems-General
- 40 CFR 75.41 - Alternate Monitoring Systems-Precision Criteria
- 40 CFR 75.42 - Alternate Monitoring Systems-Reliability Criteria
- 40 CFR 75.43 - Alternate Monitoring Systems-Accessability Criteria
- 40 CFR 75.44 - Alternate Monitoring Systems-Timeliness Criteria
- 40 CFR 75.45 - Alternate Monitoring Systems-Daily QA
- 40 CFR 75.46 - Alternate Monitoring Systems-Missing data
- 40 CFR 75.47 - Alternate Monitoring Systems-Criteria for Class
- 40 CFR 75.48 - Alternate Monitoring Systems-Petition
- 40 CFR 75.53 - Monitoring Plan ; revisions
- 40 CFR 75.54(a) - Recordkeeping-general
- 40 CFR 75.54(b) - Recordkeeping-operating parameter
- 40 CFR 75.54(c) - Recordkeeping-SO₂


40 CFR 75.54(d)	- Recordkeeping-NOx
40 CFR 75.54(e)	- Recordkeeping-CO2
40 CFR 75.54(f)	- Recordkeeping-Opacity
40 CFR 75.55(c)	- General Recordkeeping (Specific Situations)
40 CFR 75.55(e)	- General Recordkeeping (Specific Situations)
40 CFR 75.56	- Certification; QA/QC Provisions
40 CFR 75.60	- Reporting Requirements-General
40 CFR 75.61	- Reporting Requirements-Notification cert/recertification
40 CFR 75.62	- Reporting Requirements-Monitoring Plan
40 CFR 75.63	- Reporting Requirements-Certification/Recertification
40 CFR 75.64(a)	- Reporting Requirements-Quarterly reports; submission
40 CFR 75.64(b)	- Reporting Requirements-Quarterly reports; DR statement
40 CFR 75.64(c)	- Rep. Req.; Quarterly reports; Compliance Certification
40 CFR 75.64(d)	- Rep. Req.; Quarterly reports; Electronic format
40 CFR 75.66	- Petitions to the Administrator (if required)
Appendix A-1	- Installation and Measurement Locations
Appendix A-2.	- Equipment Specifications
Appendix A-3.	- Performance Specifications
Appendix A-4.	- Data Handling and Acquisition Systems
Appendix A-5.	- Calibration Gases
Appendix A-6.	- Certification Tests and Procedures
Appendix A-7.	- Calculations
Appendix B	- QA/QC Procedures
Appendix C-1.	- Missing Data; SO2/NOx for controlled sources
Appendix C-2.	- Missing Data; Load-Based Procedure; NOx & flow
Appendix D	- Optional SO2; Oil-/gas-fired units
Appendix F	- Conversion Procedures
Appendix H	- Traceability Protocol

Acid Rain Program-Excess Emissions (these are future requirements that may become applicable during the term of the Title V permit):

40 CFR 77.3	- Offset Plans (future)
40 CFR 77.5(b)	- Deductions of Allowances (future)
40 CFR 77.6	- Excess Emissions Penalties (SO2 and NOx;future)

ATTACHMENT LR-EU3-L1
PROCESS FLOW DIAGRAM



0	MG	11-2-94		ISSUED FOR TITLE V PERMIT APPLICATION	 LAKELAND ELECTRIC & WATER	DESCRIPTION	DIVISION	PRODUCTION ENGINEERING	CAD	SCALE	NONE
1	MG	5-15-96	MP	CHANGE TITLE		LAKELAND ELECTRIC & WATER UTILITIES LARSEN POWER PLANT COMBINED CYCLE TURBINE NO. 8 TITLE V PROCESS FLOW DIAGRAM	ENGINEER	PATTERSON	PROJ. NO.	AIR PERMIT	
2	MG	5-29-96	MP	ISSUED FOR TITLE V			DRN. BY:	MCIEGER	DATE	9-19-94	
REV. NO.	BY	DATE	APPR.	REVISION			APPR. BY:				

SIZE B

ATTACHMENT LR-EU3-L2
FUEL ANALYSIS OR SPECIFICATION

Attachment LR-EU3-L2

Fuel Analysis

Natural Gas Analysis

<u>Parameter</u>	<u>Typical Value</u>	<u>Max Value</u>
Relative density	0.58 (compared to air)	
heat content	950 - 1124 Btu/cu ft. (HHV)	
% sulfur	0.43 grains/CCF ¹	1 grain/100 CF
% nitrogen	0.8% by volume	
% ash	negligible	

Note: The values listed are "typical" values based upon information supplied by Florida Gas Transmission (FGT). However, analytical results from grab samples of fuel taken at any given point in time may vary from those listed.

¹ Data from laboratory analysis

Attachment LR-EU3-L2

Fuel Analysis

No. 2 Fuel Oil

<u>Parameter</u>	<u>Typical Value</u>	<u>Max Value</u>
API gravity @ 60 F	30 ¹	-
Relative density	6.92 lb/gal ²	
Heat content	18,400 Btu / lb (LHV)	
% sulfur	< 0.2 ²	0.2 ³
% nitrogen	0.025 - 0.030	
% ash	negligible	0.01 ¹

Note: The values listed are "typical" values based upon 1) information gathered by laboratory analysis, and 2) fuel purchasing specifications. However, analytical results from grab samples of fuel taken at any given point in time may vary from those listed.

¹ Data taken from the fuel procurement specification

² Permit limit

³ Data from current air permit.

ATTACHMENT LR-EU3-L3

DETAILED DESCRIPTION OF CONTROL EQUIPMENT

ATTACHMENT LR-EU3-L3

DETAILED DESCRIPTION OF CONTROL EQUIPMENT

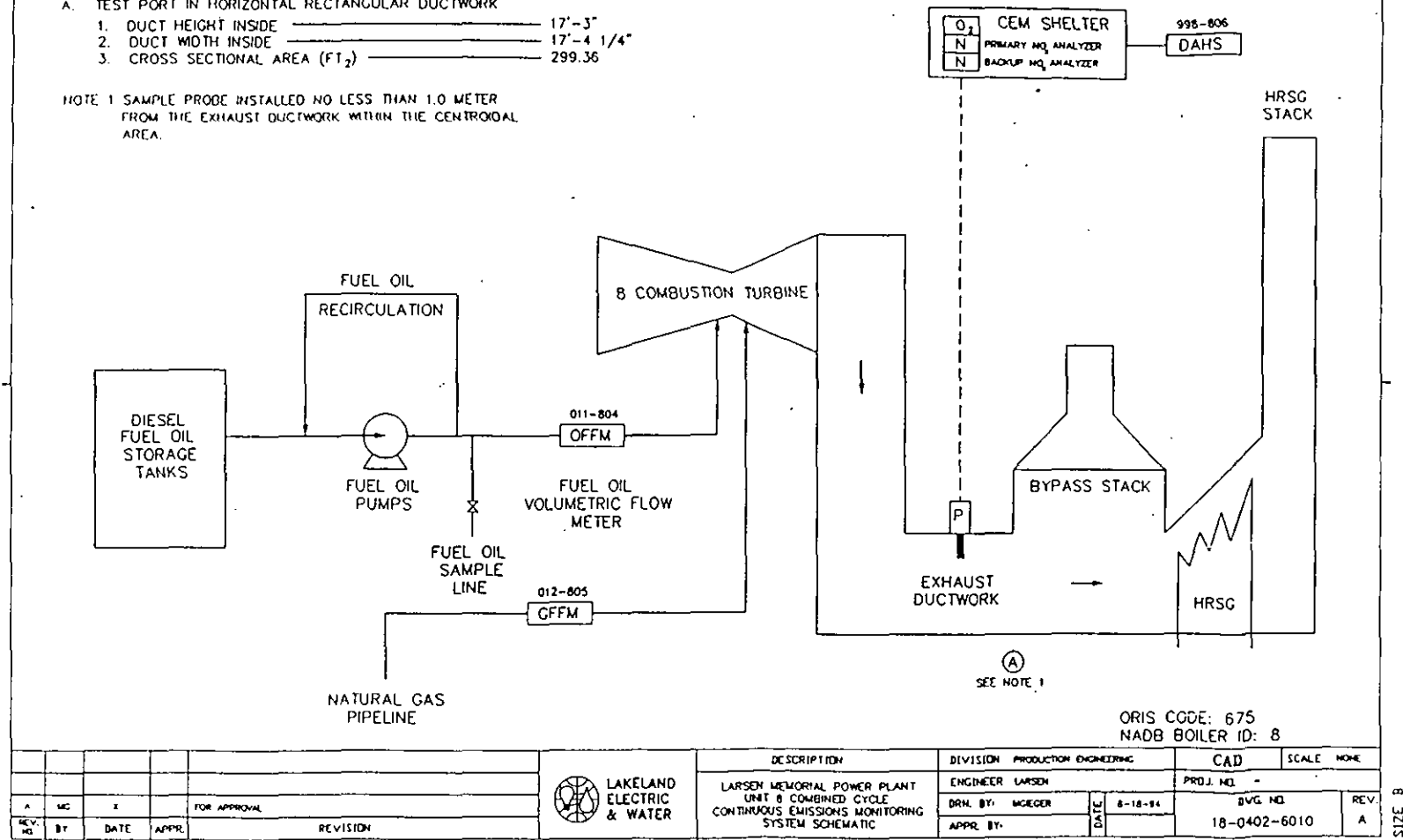
The GE Mark IV NO_x control algorithm utilizes data from digital temperature and humidity monitors located at each combustion turbine. The algorithm receives and processes the ambient temperature and humidity on a continuous basis. A temperature/humidity correction is used in determining the amount of water to inject for NO_x control. The correction accounts for the ambient water entering the combustion chamber, and then it adds the correct amount of injection water in order to ensure compliance with the unit's required water-to-fuel ratio as determined from the water/fuel curve. This algorithm ensures compliance on a continuous basis regardless of the unit load and ambient weather conditions.

ATTACHMENT LR-EU3-L4
DESCRIPTION OF STACK SAMPLING FACILITIES

A. TEST PORT IN HORIZONTAL RECTANGULAR DUCTWORK

1. DUCT HEIGHT INSIDE _____ 17'-3"
2. DUCT WIDTH INSIDE _____ 17'-4 1/4"
3. CROSS SECTIONAL AREA (FT₂) _____ 299.36

NOTE 1 SAMPLE PROBE INSTALLED NO LESS THAN 1.0 METER FROM THE EXHAUST DUCTWORK WITHIN THE CENTROIDAL AREA.



				 LAKELAND ELECTRIC & WATER	DESCRIPTION LARSEN MEMORIAL POWER PLANT UNIT 8 COMBINED CYCLE CONTINUOUS EMISSIONS MONITORING SYSTEM SCHEMATIC	DIVISION PRODUCTION ENGINEERING		CAD		SCALE NONE	
A	MC	I				ENGINEER LARSEN		PROJ. NO. -			
REV. NO.	BY	DATE	APPR.	FOR APPROVAL		DRN. BY: MUEGER	DATE: 8-18-94	BVG NO.		REV.	
				REVISION		APPR. BY:		18-0402-6010		A	

SIZE B

ATTACHMENT LR-EU3-L6
STARTUP AND SHUTDOWN PROCEDURES

ATTACHMENT LR-EU3-L6
PROCEDURES FOR STARTUP/SHUTDOWN

Startup for the gas turbine begins with an electric control system using a switch to initiate the unit startup cycle. The unit generator is synchronized with the grid and can be "on line" (electrical power production) within 5 minutes from startup.

The gas turbine utilizes water injection for controlling NO_x emissions. Initiation of water injection occurs when the turbine reaches stabilized load. The amount of water is a function of load based on preset algorithms in the CT digital control system. If excess emissions are encountered during startup or shutdown, the nature and cause of any malfunction is identified, along with the corrective action taken or preventative measures adopted. Corrective actions may include switching the unit from automatic (remote) to local control. Best operating practices are adhered to and all efforts to minimize both the level and duration of excess emissions are undertaken.

Shutdown is performed by reducing the unit load (electrical production) to a minimum level, opening the breaker (which disconnects the unit generator from the system electrical grid), shutting off the fuel, and coasting to a stop.

ATTACHMENT LR-EU3-L10
ALTERNATIVE METHODS OF OPERATION

ATTACHMENT LR-EU3-L10
ALTERNATIVE METHODS OF OPERATION
COMBINED CYCLE UNIT

The gas turbine can operate on both natural gas and No. 2 fuel oil. The maximum sulfur content in the fuel oil shall not exceed 0.2 percent. This unit can operate for the entire year (i.e., 8,760 hours) with natural gas or using up to 23,914,800 gallons/year of oil. The unit may operate at various loads. Routine maintenance includes injection of a turbine wash chemical to clean the inlet turbine (compressor). These chemicals consist of detergents and surfactants that are decomposed during the combustion stages of the turbine. This unit has a stack that can bypass the HRSG and can be operated in simple cycle.

ATTACHEMENT LR-EU3-L12
ADDITIONAL APPLICABLE REQUIREMENTS

ATTACHMENT LR-EU3-L12

**REQUEST TO CHANGE CONDITIONS
THAT ARE OBSOLETE AND OUTDATED**

This request is to remove from the Title V permit, several conditions of the FDEP issued PSD/air construction permit (AC53 -219296;PSD-FL-166) that are obsolete and outdated. This request is made pursuant to FDEP's Guidance on Implementation of Existing Permit Conditions Into Title V Permits (DARM-PER/V-14; February 8, 1996).

Specific Condition 1:

Delete Emissions Limits for Sulfuric Acid Mist, Beryllium, Lead and Mercury as Applicable Requirements. The limits for beryllium, lead and mercury are requested to be deleted based on FDEP guidance dated May 19, 1995 (DARM-PER/GEN-18). The guidance states that mass emission limitations for metals should not be included in the permit. The only compliance requirement for this unit in the construction permit was to determine the concentrations of Be and Hg in the distillate fuel during the initial compliance test. Since oil is secondary fuel and metal concentrations are expected to be non-detectable, the emission limits for Be, Pb and Hg should be omitted from the Title V permit. It should be noted that only the emissions for beryllium would trigger PSD. Therefore, the BACT requirement can be listed as distillate fuel oil as provided by the FDEP May 19, 1995 guidance. The production limit on the amount of distillate fuel and the current knowledge of information on trace parameters in that fuel, indicate that emissions limits for these parameters are no longer necessary. The emission limits for sulfuric acid mist should not be included in the Title V permit, since emissions of this pollutant did not trigger PSD review and there is a requirement to use very low sulfur fuel oil (i.e., 0.2 percent). There is also no requirement for testing this pollutant and the requirement for fuel analyses would provide assurance that the sulfur limit would be met. Therefore the emission limit for sulfuric acid mist is requested not to be included in the Title V permit.

Specific Condition 2:

Delete condition--The acceptable ambient air concentrations (AACs), which are currently referred to as air reference concentrations (ACRs), have not been promulgated by the Department as part of the SIP or department rule. Moreover, the original application evaluated these concentrations

and found that the facility meets these criteria. Therefore, there is no need for this condition in the Title V permit.

Specific Condition 9:

Reference to initial compliance tests should not be included in the Title V permit since the emission unit has already demonstrated initial compliance.



Department of Environmental Protection

*2/14/96 Supts.
File Orig. - Permits
(Larsen)*

Lawton Chiles
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Virginia B. Wetherell
Secretary

NOTICE OF PERMIT AMENDMENT

CERTIFIED MAIL

February 1, 1996

Mr. Charles D. Garing, Manager
Charles Larsen Power Plant
City of Lakeland
Department of Electric & Water
501 East Lemon Street
Lakeland, FL 33801-5050

RECEIVED
FEB 14 1996

Dear Mr. Garing:

Re: Polk County - Air Permit
DEP File No. 1050303-002-A0
Permit A053-219296
(Larsen Unit No. 8)

T.C. Sales, McIntosh Plant Manager
Dept. of Electric & Water Utilities
City of Lakeland
Lakeland, Florida

Enclosed is an amendment to A053-219296, for the combined-cycle combustion turbine designated Charles Larsen Power Plant Unit No. 8, located at 2002 E. U.S. Hwy 92, Lakeland, Polk County. The Department, pursuant to Florida Administrative Code Rule 62-4.070, hereby amends the permit as follows:

CHANGE SPECIFIC CONDITION NO. 5 FROM:

5. The maximum allowable emissions from this source shall not exceed the emission rates shown in the table below:

Pollutant	Standards		Tons/year	
	Natural Gas	No. 2 Oil	Gas	Oil
NOx	25 ppm (a)	42 ppm (a)	425	244
SO2	-	-	2.6	307
PM/PM10	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22
VOC	-	-	9	6.7
CO	-	-	232	79
Mercury (Hg)	-	0.000003 (b)	-	0.003
Lead (Pb)	-	0.000028 (b)	-	0.03
Beryllium	-	0.0000025 (b)	-	0.003
S.Acid Mist	-	-	-	0.0032

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

City of Lakeland
A053-219296

Specific Condition No. 5 - continued:

Notes: (a) @ 15% oxygen on a dry basis (b) lbs/MMBtu
[Const. Permit No. AC53-190437 and BACT Determination of 7/26/91].

CHANGE SPECIFIC CONDITION NO. 5 TO:

5. The maximum allowable emissions from this source shall not exceed the emission rates shown in the table below:

Pollutant	Standards		Tons/year	
	Natural Gas	No. 2 Oil	Gas	Oil
NOx	25 ppm (a)	42 ppm (a)	425	244
SO2	0.009 lb/MMBtu	-	8.6	307
PM/PM10	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22
VOC	-	-	9	6.7
CO	-	-	232	79
Mercury (Hg)	-	0.000003 (b)	-	0.003
Lead (Pb)	-	0.000028 (b)	-	0.03
Beryllium	-	0.0000025 (b)	-	0.003
S. Acid Mist	0.0017 lb/MMBtu	0.002 lb/MMBtu	0.8	9.13

Notes: (a) @ 15% oxygen on a dry basis (b) lbs/MMBtu

[Const. Permit No. AC53-190437, BACT Determination of 7/26/91, and amendment request dated October 19, 1995].

CHANGE SPECIFIC CONDITION NO. 13 FROM:

13. Test the gas turbine exhaust stack for emissions of the following annually on or during the 60 day period prior to August 6. Copies of the test data shall be submitted to the Air Program of the SW District Office of the Department within 45 days of such testing:

- (X) Visible Emissions (VE) (See also Specific Condition No. 21)
(this also serves as demonstration of compliance with the particulate emission limit)
- (X) Nitrogen Oxides (NOx)

[Construction Permit No. AC53-190437 and Rules 17-297.340 and 17-297.570, F.A.C.].

City of Lakeland
AO53-219296

CHANGE SPECIFIC CONDITION NO. 13 TO:

13. Test the gas turbine exhaust stack for emissions of the following annually on or during the 60 day period prior to December 31st. The initial compliance test using this new anniversary date shall be conducted beginning in 1996. Copies of the test data shall be submitted to the Air Program of the SW District Office of the Department within 45 days of such testing:

- (X) Visible Emissions (VE) (See also Specific Condition No. 21)
(this also serves as demonstration of compliance with the particulate emission limit)
- (X) Nitrogen Oxides (NOx)

[Rules 62-297.340 and 62-297.570, F.A.C.].

CHANGE SPECIFIC CONDITION NO. 19 FROM:

19. For purposes of documenting compliance with the NOx limitation of Specific Condition No. 5 based on the results of the Method 20 stack test results, the NOx emission rate shall be computed for each run in accordance with 40 CFR 60.335(c)(1) (or 60.335(f)(1) if appropriate approvals are obtained).

[Rule 17-296.800, F.A.C., and 40 CFR 60.335].

CHANGE SPECIFIC CONDITION NO. 19 TO:

19. For purposes of documenting compliance with the NOx limitation of Specific Condition No. 5 based on the results of the Method 20 stack test results, the NOx emission rate shall be computed for each run in accordance with the requirements of the Method. ISO correction is not required.

[Rule 62-296.800, F.A.C., 40 CFR 60.335, and H. Rhodes memorandum dated November 22, 1995].

A person whose substantial interests are affected by this permit amendment may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of receipt of these Permits. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

City of Lakeland
A053-219296

The Petition shall contain the following information;

- (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
- (b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
- (c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
- (d) A statement of the material facts disputed by Petitioner, if any;
- (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or
- (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and
- (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in these permits. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This Permit Amendment is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 62-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this Permit Amendment will not be effective until further Order of the Department.

When the Order (Permit Amendment) is final, any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate procedure, with the Clerk of the

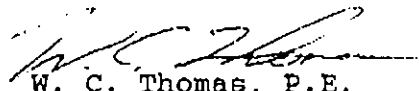
City of Lakeland
A053-219296

Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Final Order is filed with the Clerk of the Department.

This Permit Amendment replaces the amendment dated January 18, 1996. This letter must be attached to and becomes a part of Permit No. A053-219296. If you should have any questions, please call Bill Schroeder of my staff at (813)744-6100 extension 104.

Executed in Tampa, Florida.

Sincerely,



W. C. Thomas, P.E.
District Air Program Administrator

WCT/WES

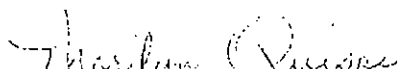
cc: Farzie Shelton, City of Lakeland
Martin Costello, DARM

CERTIFICATE OF SERVICE

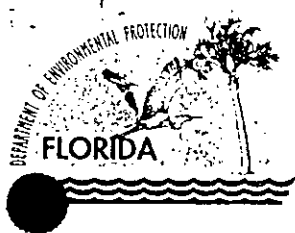
This is to certify that this NOTICE OF PERMIT AMENDMENT and all copies were mailed by certified mail before the close of business on FEB 13 1996 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGEMENT FILED,
on this date, pursuant to Section
120.52(11), Florida Statutes, with
the designated Department Clerk,
receipt of which is hereby
acknowledge.


(clerk)

FEB 13 1996
(Date)



Department of Environmental Protection

Lawton Chiles
Governor

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

Virginia B. Wetherell
Secretary

December 18, 1995

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Ms. Farzie Shelton
Environmental Coordinator
Department of Electric and Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5050

Dear Ms. Shelton:

Re: Charles Larson Power Plant Unit 8--Combustion Turbine
PSD-FL-166/AC53-190437
Request to amend permit

The Department is in receipt of your June 27, 1995 request to amend the above referenced permit. You requested a customized fuel monitoring schedule for the sulfur and nitrogen content of the natural gas fired in the turbine. You also requested that the sulfur dioxide and sulfuric acid mist permit limits be changed. In addition, you requested clarification of the nitrogen oxides compliance testing requirements, i.e. the ISO correction, specified in the above referenced permit.

The Department acknowledges your oversight in neglecting the sulfur from mercaptans (which are added to the natural gas for safety reasons) in your estimate of annual SO₂ emissions. The Department also agrees that a typographical error was apparently made in the annual emission limits for sulfuric acid mist, both for natural gas and oil.

The Department hereby incorporates each of the following amendments to the above referenced permit:

Custom Fuel Monitoring Schedule

The proposed custom fuel monitoring schedule (attached) has been approved by EPA and is included as an attachment to the above referenced permit. This fuel monitoring schedule supersedes AC53-190437 / PSD-FL-166 condition 23 which

Ms. Farzie Shelton
December 18, 1995
page 2

requires annual reports for nitrogen content of the fuel being fired, as this condition applies to the firing of natural gas.

Annual Sulfur Dioxide And Sulfuric Acid Mist Limits

The annual sulfur dioxide and sulfuric acid mist limits is changed as follows:

TABLE 1

FROM:

SO₂..... 2.6 (tpy on gas)

Sulfuric Acid Mist..... - (tpy on gas)... 3.3×10^{-3} (tpy on oil)

TO:

SO₂..... 8.6 (tpy on gas)

Sulfuric Acid Mist..... 0.8 (tpy on gas)... 9.13 (tpy on oil)

Correction of NO_x Emissions to ISO Conditions

Based on the recent guidance memorandum on combustion turbines the Department hereby removes the requirement to correct the test data to ISO conditions for comparison with the NO_x emission limits established pursuant to the BACT determination for gas and oil firing. To institute this change, Permit PSD-FL-166/AC53-190437 Specific Condition 13 is amended as follows:

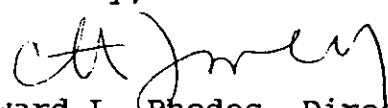
During the initial performance tests, to determine compliance with the proposed NSPS NO_x standard, measured NO_x emission at 15 percent oxygen will be adjusted to ISO

A copy of this amendment letter shall be attached to and

Ms. Farzie Shelton
December 18, 1995
page 3

shall become a part of Air Construction Permit PSD-FL-166 /
AC53-190437.

Sincerely,

for 
Howard L. Rhodes, Director
Division of Air Resources
Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **PERMIT AMENDMENT** and all copies were mailed by certified mail before the close of business on 12-22-95 to the listed persons.

Clerk Stamp
FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.

Lynn J. Baker 12-22-95
Clerk Date

Copies to be furnished to:

Jerry Kissel, SWD
Jewell Harper, EPA
Roy Harwood, Polk Co.

CUSTOMED FUEL MONITORING SCHEDULE

1. Monitoring of natural gas nitrogen content shall not be required in accordance with page 2 of the EPA guidance memorandum, attached.
2. Sulfur Monitoring
 - a. Analysis for sulfur content of the natural gas shall be conducted using one of the EPA-approved ASTM reference methods for the measurement of sulfur in gaseous fuels, or an approved alternate method. The reference methods are: ASTM D1072-80; ASTM D3031-81; ASTM D3246-81; and ASTM D4084-82 as referenced in 40 CFR § 60.335(b)(2).
 - b. Effective on the approval date of the customized fuel monitoring schedule, sulfur monitoring shall be conducted twice a month for six months. If this monitoring shows little variability in the sulfur content and indicates consistent compliance with 40 CFR § 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.
 - c. If the sulfur content monitoring required for natural gas by 2(b) above shows little variability and the calculated sulfur dioxide emissions represent consistent compliance with the sulfur dioxide emission limits specified under 40 CFR § 60.333, sample analysis shall be conducted twice per year. This monitoring shall be conducted during the first and third quarters of each calendar year.
 - d. Should any sulfur analysis as required by items 2(b) or 2(c) above indicate noncompliance with 40 CFR § 60.333, the City will notify the Department of Environmental Protection of such excess emission and the customized fuel monitoring schedule shall be reexamined. The sulfur content of the natural gas will be monitored weekly during the interim period while this monitoring schedule is being reexamined.
3. The City will notify the Department of Environmental Protection of any change in natural gas supply for reexamination of this monitoring schedule. A substantial change in natural gas quality (i.e., sulfur content varying greater than 10 grains/1000 cf gas) shall be considered as a change in natural gas supply. Sulfur content of the natural gas will be monitored weekly during the interim period when this monitoring schedule is being reexamined.
4. Records of sampling analysis and natural gas supply pertinent to this monitoring schedule shall be retained by the City for a period of three years, and shall be available for inspection by appropriate regulatory personnel.
5. The City will obtain the sulfur content of the natural gas from Florida Gas Transmission Company. (The data presented in Attachment B is based upon representative samples of natural gas taken by Florida Gas Transmission.)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF PERMIT

In the matter of an
Application for Permit by:

DER File No. AC 53-190437
PSD-FL-166
Polk County

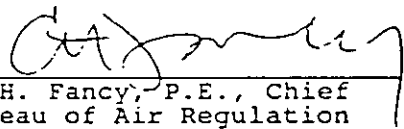
City of Lakeland
501 East Lemon Street
Lakeland, Florida 33801-5050

Enclosed is Permit Number AC 53-190437/PSD-FL-166 to install a combined cycle gas turbine plant at the existing Charles Larsen power plant in Lakeland, Polk County, Florida, issued pursuant to Section(s) 403, Florida Statutes.

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

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



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

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on 7-26-91 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to
§120.52(11), Florida Statutes,
with the designated Department
Clerk, receipt of which is hereby
acknowledged.


(Clerk)

7-26-91
(Date)

Copies furnished to:

J. Harper, EPA
S. Day, B&V
H. Kerns, SW District
D. Schultz, B&V
C. Shaver, NPS

CC: Bill Rodriguez
Ed McDonald
Chuck Garing

Final Determination

City of Lakeland-Charles Larsen Power Plant
Lakeland, Florida

120 MW Combined Cycle Gas Turbine System

Permit Number: AC 53-190437
PSD-FL-166

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

July 19, 1991

Final Determination

The Technical Evaluation and Preliminary Determination for the permit to install a combined cycle gas turbine at the City of Lakeland-Charles Larsen power plant in Lakeland, Polk County, Florida, was distributed on March 15, 1990. The Notice of Intent to Issue was published in the Lakeland Ledger on April 3, 1991. Copies of the evaluation were available for public inspection at the Department's Tampa and Tallahassee offices.

The City of Lakeland's (City) permit application has been reviewed and the Final Determination made by the Division of Air Resources Management. EPA Region IV indicated in their April 4 letter (attachment 2) that they had no adverse comments on the Technical Evaluation and Preliminary Determination (TE & PD). Comments were received from the City of Lakeland dated April 3 and May 15, 1991 (see attachments 1 and 4) and from the National Park Service (NPS) dated May 3, 1991 (attachment 3). The Division concurs with the City's comments concerning the narrative portion of the TE & PD and the comments will become part of the permit file. The NPS and the City's comments which pertain to BACT and Air Quality Analysis are addressed as follows:

BACT

The City would like a 33 percent instead of the proposed 25 percent capacity limit when using oil. In their May 15 letter they provided several supporting reasons as follows:

- a. Limiting the oil to a maximum sulfur content of 0.2 percent is lower than recent permit applications of 0.3 to 0.5 percent sulfur.
- b. The planned improvements will retire an existing 2.5 percent sulfur unit at the same facility.
- c. The higher capacity limit is consistent with permit conditions being revised for the City of Vero Beach, should low NOx burners be installed.
- d. Most 25 percent capacity limitations on other Florida projects have 65 ppmvd instead of the 42 ppmvd limit on the City's proposed facility.
- e. Increased concern for natural gas capacity given existing uses and proposals to build new facility with generation exceeding 3500MW over the next 8-10 years.

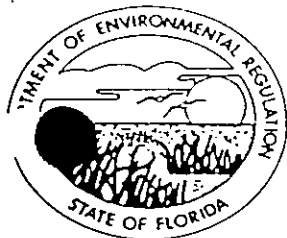
Considering the use of low NOx burners (emission rate of 42 ppmvd) and the use of 0.2 percent maximum sulfur No. 2 fuel oil to limit the SO₂ emissions, DER is willing to allow up to 33% capacity limit for oil firing or 2925 hours per year.

Air Quality Analysis

NPS found the City's dispersion modeling analysis to be deficient since it lacked cumulative Class I increment analysis including all increment consuming sources impacting Chassahowitzka Wilderness Area. The NPS is becoming increasingly concerned about the cumulative impact of emissions on resources, such as lichens and bryophytes, that are known to be particularly sensitive to SO₂. They are also concerned about the acidification of surface water in the Wilderness Area due to increased sulfur and nitrogen deposition. They state that, "Acidification can have serious implications not only to invertebrates and fish but... species higher on the food chain... such as alligator, pelican, and bald eagle."

The Department agrees on the necessity to evaluate the total ambient pollution levels in the Wilderness Area. The Department agrees that future applicants will be required to perform a cumulative analysis for all increment consuming sources impacting the Chassahowitzka Wilderness Area.

The final action of the Department will be to issue construction permit AC 53-190437/PSD-FL-166 as proposed in the Technical Evaluation and Preliminary Determination.



Florida Department of Environmental Regulation

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

Lawton Chiles, Governor

Carol M. Browner, Secretary

PERMITTEE:

City of Lakeland
501 E. Lemon Street
Lakeland, Florida 32961

Permit Number: AC 53-190437
Expiration Date: March 30, 1993
County: Polk
Latitude/Longitude: 28°02'56"N
81°55'25"W
Project: 120 MW Combined Cycle
Gas Turbine

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Chapters 17-2 and 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

For the construction of a 120 MW combined cycle gas turbine to be located at the City of Lakeland-Charles Larsen Power Plant in Lakeland, Florida. The turbine will fire natural gas as the primary fuel and have limited hours firing No. 2 fuel oil. The turbine is a GE PG7111 (EA) Frame 7 unit with water injection to reduce NOx emissions. Fuel flow rate for natural gas is 17,333 scfm @ ISO and 124.2 gal/min @ ISO for No. 2 fuel oil. The UTM coordinates are 409.185 km East and 3102.754 km North.

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

Attachments are listed below:

1. City of Lakeland-Charles Larsen Power Plant's letter dated April 3, 1991.
2. EPA Region IV letter dated April 4, 1991.
3. National Park Service's letter dated May 3, 1991.
4. City of Lakeland's letter dated May 15, 1991.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

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

- a. Have access to and copy any records that must be kept under the conditions of the permit;
- b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

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

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

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

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

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

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

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

11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 17-4.120 and 17-30.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

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

13. This permit also constitutes:

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

14. The permittee shall comply with the following:

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

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

GENERAL CONDITIONS:

- b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
- c. Records of monitoring information shall include:
- the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the dates analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

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

SPECIFIC CONDITIONS:

Emission Limits

1. The maximum allowable emissions from this facility shall not exceed the emission rates listed in Table 1.
2. Unless the Department has determined other concentrations are required to protect public health and safety, predicted acceptable ambient air concentrations (AAC) of the following pollutants shall not be exceeded:

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

Pollutant	Acceptable Ambient Concentrations		
	ug/m ³		
	8-hrs	24-hrs	Annual
Beryllium	0.02	0.005	0.0004
Lead	1.5	0.36	0.09
Inorganic mercury compounds, all forms of vapor, as Hg	-	-	0.3

3. Visible emissions shall not exceed 10% opacity.

Operating Rates

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

5. This source is allowed to use natural gas as the primary fuel and No. 2 distillate oil as the secondary fuel (limited as shown in Specific Condition 6 below).

6. The permitted materials and utilization rates for the combined cycle gas turbine shall not exceed the values as follows:

- Maximum No. 2 fuel oil consumption shall not exceed either of the following limitations: 8,190 gals/hr; 23,914,800 gals/yr.
- Maximum annual firing using No. 2 fuel oil shall not exceed 1/3 of the annual capacity factor.
- Maximum sulfur (S) content in the No. 2 fuel oil shall not exceed 0.20 percent by weight.
- Maximum heat input shall not exceed 1055 MMBtu/hr (gas) or 1040 MMBtu/hr No. 2 fuel (oil).

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

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

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

Compliance Determination

9. Initial (I) compliance tests shall be performed on each CT using both fuels. The stack test for each turbine shall be performed within 10 percent of the maximum heat rate input for the tested operating temperature. Annual (A) compliance tests shall be performed on each CT with the fuel(s) used for more than 400 hours in the preceding 12-month period. Tests shall be conducted using EPA reference methods in accordance with the November 2, 1989, version of 40 CFR 60 Appendix A:

- a. 5 or 17 for PM (I, A, for oil only)
- b. 10 for CO (I)
- c. 9 for VE (I, A)
- d. 20 for NO_x (I, A)
- e. Trace elements of Beryllium (Be) shall be tested (I, for oil only) using EMTIC Interim Test Method. As an alternative, Method 104 may be used; or Be may be determined from fuel sample analysis using either Method 7090 or 7091, and sample extraction using Method 3040 as described in the EPA solid waste regulations SW 846.
- f. Mercury (Hg) shall be tested using EPA Method 101 (40 CFR 61, Appendix B) (I, for oil only) or fuel sampling analysis using methods acceptable to the Department.

Other DER approved methods may be used for compliance testing after prior Departmental approval.

10. Method 5 or 17 must be used to determine the initial compliance status of this unit. Thereafter, the opacity emissions test may be used unless 10% opacity is exceeded.

11. Compliance with the SO₂ emission limit can also be determined by calculations based on fuel analysis using ASTM D2880-71 for the sulfur content of liquid.

12. Compliance with the total volatile organic compound emission limits will be assumed, provided the CO allowable emission rate is achieved; specific VOC compliance testing is not required.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

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

$$\text{NO}_x = (\text{NO}_x \text{ obs}) \left(\frac{P_{\text{ref}}}{P_{\text{obs}}} \right)^{0.5} e^{19(H_{\text{obs}} - 0.00633)} \left(\frac{288^\circ\text{K}}{T_{\text{AMB}}} \right)^{1.53}$$

where:

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

NO_x obs = Measured NO_x emission at 15 percent oxygen, ppmv.

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

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

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

e = Transcendental constant (2.718).

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

14. Test results will be the average of 3 valid runs. The Southwest District office will be notified at least 30 days in advance of the compliance test. The source shall operate between 90% and 100% of permitted capacity during the compliance test. Compliance test results shall be submitted to the Southwest District office no later than 45 days after completion.

15. Water injection shall be utilized for NO_x control. The water to fuel ratio at which compliance is achieved shall be incorporated into the permit and shall be continuously monitored. In addition, the Permittee shall install a duct module suitable for future installation of SCR equipment.

16. To determine compliance with the capacity factor condition for oil firing, the Permittee shall maintain daily records of fuel usage. All records shall be maintained for a minimum of three years after the date of each record and shall be made available to representatives of the Department upon request.

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

17. Sulfur, nitrogen content and lower heating value of the fuel being fired in the gas turbine shall also be recorded per fuel oil shipment. These records shall also be kept by the company for at least three years and made available for regulatory agency's inspection.

18. Compliance with the acceptable ambient concentrations for Be, Lead, and Hg emissions shall be demonstrated based on calculations certified by a Professional Engineer registered in Florida, using actual operating conditions. Determination of the ambient concentrations for chemical compounds shall be determined by Department approved dispersion modeling. This compliance determination shall be made available upon request.

Rule Requirements

19. This source shall comply with all applicable provisions of Chapter 403, Florida Statutes and Chapters 17-2 and 17-4, Florida Administrative Code.

20. This source shall comply with all requirements of 40 CFR 60, Subpart GG and F.A.C. Rule 17-2.660(2)(a), Standards of Performance for Stationary Gas Turbines.

21. Issuance of this permit does not relieve the facility owner or operator from compliance with any applicable federal, state, or local permitting requirements and regulations (F.A.C. Rule 17-2.210(1)).

22. This source shall comply with F.A.C. Rule 17-2.700, Stationary Point Source Emission Test Procedures.

23. Pursuant to F.A.C. Rule 17-2.210(2), Air Operating Permits, the permittee is required to submit annual reports on the actual operating rates and emissions from this facility. These reports shall include, but are not limited to the following: sulfur, nitrogen content and lower heating value of the fuel being fired, fuel usage, hours of operation, air emissions limits, etc. Annual reports shall be sent to the Department's Southwest District office.

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

PERMITTEE:
City of Lakeland

Permit Number: AC 53-190437
Expiration Date: March 30, 1993

SPECIFIC CONDITIONS:

25. An application for an operation permit must be submitted to the Southwest District office at least 90 days prior to the expiration date of this construction permit or within 45 days after completion of compliance testing, whichever occurs first. To properly apply for an operation permit, the applicant shall submit the appropriate application form, fee, certification that construction was completed noting any deviations from the conditions in the construction permit, and compliance test reports as required by this permit (F.A.C. Rule 17-4.220).

Issued this 25th day
of July, 1991

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Carol M. Browner
Carol M. Browner, Secretary

TABLE 1
ALLOWABLE EMISSION LIMITS
Combined Cycle Combustion Turbine

Pollutant	Standards		Gas Turbine and HRSG ^(a)		Basis
	Gas Firing	No. 2 Fuel Oil Firing	Tons Per Year		
			Gas	Oil	
NO _x	25 ppm at 15% oxygen on a dry basis	42 ppmv at 15 percent oxygen on a dry basis	425	244	BACT
SO ₂	Natural gas as fuel	0.2 percent S by weight	2.6	307	BACT
PM/PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu	22	22	BACT
VOC	-	-	9	6.7	BACT
CO	-	-	232	79	BACT
Mercury (Hg)	-	3.0 x 10 ⁻⁶ lbs/MMBtu	-	.003	Est. by Appl.
Lead (Pb)	-	2.8 x 10 ⁻⁵ lbs/MMBtu	-	0.03	" "
Beryllium (be)	-	2.5 x 10 ⁻⁶ lbs/MMBtu	-	.003	BACT
Sulfuric Acid Mist	Natural gas as fuel	Low sulfur content oil	-	3.2 x 10 ⁻³	BACT

(a) Emissions rates based on 100 percent capacity factor for natural gas and 1/3 capacity factor for oil firing.

Best Available Control Technology (BACT) Determination
City of Lakeland-Charles Larsen Power Plant
Polk County

The applicant proposes to install a combustion turbine generator at their facility in Lakeland. The generator system will consist of a single nominal 80 megawatt (MW) combustion turbine, and a single heat recovery steam generator (HRSG) which will be used to repower an existing nominal 40 MW steam turbine.

The combustion turbine will be capable of both combined cycle and simple cycle operation. The applicant requested that the combustion turbine use either natural gas or distillate oil. The applicant has indicated the maximum annual tonnage of regulated air pollutants emitted from the facility based on 100 percent capacity and type of fuel fired at ISO conditions to be as follows:

Pollutant	Potential Emissions (tons/yr)		PSD Significant Emission Rate (tons/yr)
	Natural Gas	Fuel Oil	
NOx	425	732	40
SO ₂	2.6	920	40
PM	22.0	66	25
PM ₁₀	22.0	66	15
CO	232	237	100
VOC	9	20.0	40
H ₂ SO ₄	0.8	27.4	7
Be	0.0	0.01	0.0004
Hg	0.0	0.01	0.1
Pb	0.0	0.12	0.1

Florida Administrative Code Rule 17-2.500(2)(f)(3) requires a BACT review for all regulated pollutants emitted in an amount equal to or greater than the significant emission rates listed in the previous table.

Date of Receipt of a BACT Application

December 17, 1990

BACT Determination Requested by the Applicant

<u>Pollutant</u>	<u>Determination</u>
NOx	25 ppmvd @ 15% O ₂ (natural gas burning) 42 ppmvd @ 15% O ₂ (diesel oil firing)
SO ₂	Firing of natural gas or No. 2 fuel oil with a maximum sulfur content of 0.20%
PM and PM ₁₀	Combustion control
H ₂ SO ₄	Firing of No. 2 fuel oil with a maximum sulfur content of 0.20%.
Be	Firing of No. 2 fuel oil

BACT Determination Procedure

In accordance with Florida Administrative Code Chapter 17-2, Air Pollution, this BACT determination is based on the maximum degree of reduction of each pollutant emitted which the Department, on a case by case basis, taking into account energy, environmental and economic impacts, and other costs, determines is achievable through application of production processes and available methods, systems, and techniques. In addition, the regulations state that in making the BACT determination the Department shall give consideration to:

- (a) Any Environmental Protection Agency determination of Best Available Control Technology pursuant to Section 169, and any emission limitation contained in 40 CFR Part 60 (Standards of Performance for New Stationary Sources) or 40 CFR Part 61 (National Emission Standards for Hazardous Air Pollutants).
- (b) All scientific, engineering, and technical material and other information available to the Department.
- (c) The emission limiting standards or BACT determinations of any other state.
- (d) The social and economic impact of the application of such technology.

The EPA currently stresses that BACT should be determined using the "top-down" approach. The first step in this approach is to determine for the emission source in question the most stringent control available for a similar or identical source or source category. If it is shown that this level of control is technically or economically infeasible for the source in question, then the next most stringent level of control is determined and similarly evaluated. This process continues until the BACT level under consideration cannot be eliminated by any substantial or unique technical, environmental, or economic objections.

The air pollutant emissions from combined cycle power plants can be grouped into categories based upon what control equipment and techniques are available to control emissions from these facilities. Using this approach, the emissions can be classified as follows:

- o Combustion Products (Particulates and Heavy Metals). Controlled generally by good combustion of clean fuels.
- o Products of Incomplete Combustion (CO, VOC, Toxic Organic Compounds). Control is largely achieved by proper combustion techniques.
- o Acid Gases (SOx, NOx, HCl, F1). Controlled generally by gaseous control devices.

Grouping the pollutants in this manner facilitates the BACT analysis because it enables the equipment available to control the type or group of pollutants emitted and the corresponding energy, economic, and environmental impacts to be examined on a common basis. Although all of the pollutants addressed in the BACT analysis may be subject to a specific emission limiting standard as a result of PSD review, the control of "nonregulated" air pollutants is considered in imposing a more stringent BACT limit on a "regulated" pollutant (i.e., particulates, sulfur dioxide, fluorides, sulfuric acid mist, etc.), if a reduction in "nonregulated" air pollutants can be directly attributed to the control device selected as BACT for the abatement of the "regulated" pollutants.

Combustion Products

The City of Lakeland's projected emissions of particulate matter, PM₁₀, and beryllium surpass the significant emission rates given in Florida Administrative Code Rule 17-2.500, Table 500-2 for No. 2 fuel oil firing only.

A PM/PM₁₀ emissions limitation of .025 lb/MMBtu for No. 2 fuel oil firing is reasonable as BACT for the Lakeland facility.

In general, the BACT/LAER Clearinghouse does not contain specific emission limits for beryllium from turbines. BACT for these heavy metals is typically represented by the level of particulate control. As this is the case, the emission factor of .025 lb/MMBtu for particulate matter PM₁₀ is judged to also represent BACT for beryllium.

Products of Incomplete Combustion

The emissions of carbon monoxide exceeds the significant level and therefore requires a BACT analysis.

At the proposed BACT NO_x emissions of 25/42 ppmvd (gas/oil) the turbine will be capable of maintaining CO emission rates of 25 ppmvd for either natural gas or No. 2 fuel oil. The applicant states that catalytic reduction could be installed at a levelized cost of 1.0 million/year to further reduce the CO emissions by 140 tons/year while burning natural gas (8760 hrs/yr). The incremental removal cost of using such control would be approximately \$7340/ton of CO removed. This cost exceeds that which is consistent with BACT and is not economically justifiable.

Acid Gases

The emissions of sulfur dioxide, nitrogen oxides, and sulfuric acid mist, represent a significant proportion of the total emissions and need to be controlled if deemed appropriate. Sulfur dioxide emissions from combustion turbines are directly related to the sulfur content of the fuel being combusted.

The applicant has proposed the use of natural gas and No. 2 fuel oil with a maximum sulfur content of 0.20% to control sulfur dioxide emissions. A review of the latest edition (1990) of the BACT/LAER Clearinghouse indicates that sulfur dioxide emissions from combustion turbines have been controlled by limiting fuel oil sulfur content to a range of 0.1 to 0.3%, with the average for the facilities listed being approximately 0.24 percent. As this is the case, the applicant's proposal to use No. 2 fuel oil with a maximum sulfur content of 0.20% is judged to represent BACT.

The applicant has stated that BACT for nitrogen oxides will be met by using wet (water or steam) injection necessary to limit emissions to 42 ppmvd or 25 ppmvd at 15% oxygen when burning No. 2 fuel oil or natural gas, respectively.

A review of the EPA's BACT/LAER Clearinghouse indicates that the lowest NO_x emission limit established to date for a combustion turbine is 4.5 ppmvd at 15% percent oxygen. This level of control was accomplished through the use of water injection and a selective catalytic reduction (SCR) system.

Selective catalytic reduction is a post-combustion method for control of NO_x emissions. The SCR process combines vaporized ammonia with NO_x in the presence of a catalyst to form nitrogen and water. The vaporized ammonia is injected into the exhaust gases prior to passage through the catalyst bed. The SCR process can achieve up to 90% reduction of NO_x with a new catalyst. As the catalyst ages, the maximum NO_x reduction will decrease to approximately 86 percent.

Given the applicant's proposed BACT level for nitrogen oxides control stated above, an evaluation can be made of the cost and associated benefit of using SCR as follows:

The applicant has indicated that the total levelized annual cost (operating plus amortized capital cost) to install SCR for natural gas firing at 100 percent capacity factor is \$2,190,000. Taking into consideration the total levelized annual cost, a cost/benefit analysis of using SCR can now be developed.

Based on the information supplied by the applicant, it is estimated that the maximum annual NOx emissions with wet injection from the Lakeland facility will be 425 tons/year. Assuming that SCR would reduce the NOx emissions by an additional 80-85%, the SCR would control at least 340 tons of NOx annually for natural gas firing. When this reduction is taken into consideration with the total levelized annual cost of \$2,190,000, the cost per ton of controlling NOx is \$6,441. This calculated cost is higher than has previously been approved as BACT.

Since SCR has been determined to be BACT for several combined cycle facilities, the EPA has clearly stated that there must be unique circumstances to consider the rejection of such control on the basis of economics.

In a recent letter from EPA Region IV to the Department regarding the permitting of a combined cycle facility (Tropicana Products, Inc.), the following statement was made:

"In order to reject a control option on the basis of economic considerations, the applicant must show why the costs associated with the control are significantly higher for this specific project than for other similar projects that have installed this control system or in general for controlling the pollutant."

A review of the combined cycle facilities in which SCR has been established as a BACT requirement indicates that the majority of these facilities are also intended to operate at high capacity factors. As this is the case, the proposed project is similar to other facilities in which SCR has been established as BACT, thereby supporting SCR as BACT for the proposed facility.

For fuel oil firing, the cost associated with controlling NOx emissions must take into account the potential operating problems that can occur with using SCR in the oil firing mode.

A concern associated with the use of SCR on combined cycle projects is the formation of ammonium bisulfate. For the SCR process, ammonium bisulfate can be formed due to the reaction of sulfur in the fuel and the ammonia injected. The ammonium bisulfate formed has a tendency to plug the tubes of the heat recovery steam generator leading to operational problems. As this is the case, SCR has been judged to be technically infeasible for oil firing in some previous BACT determinations.

The latest information available now indicates that SCR can be used for oil firing provided that adjustments are made in the ammonia to NOx injection ratio. For natural gas firing operation NOx emissions can be controlled with up to a 90 percent efficiency using a 1 to 1 or greater injection ratio. By lowering the injection ratio for oil firing, testing has indicated that NOx can be controlled with efficiencies ranging from 60 to 75 percent. When the injection ratio is lowered there is not a problem with ammonium bisulfate formation since essentially all of the ammonia is able to react with the nitrogen oxides present in the combustion gases.

Based on this strategy SCR has been both proposed and established as BACT for oil fired combined cycle facilities with NOx emission limits ranging from 11.7 to 25 ppmvd depending on the efficiency of control established.

Assuming that the lowered ammonia injection ratio strategy was used to control NOx emissions by 65%, the SCR would control 386 tons of NOx annually for oil/gas firing, assuming a maximum capacity factor of 33 percent on oil. When this reduction is taken into consideration with the total annual cost of \$2,190,000, the cost per ton of controlling NOx is \$5,674. This cost is lower than that determined for natural gas firing alone; however, it is still higher than what has been previously accepted as BACT.

Environmental Impact Analysis

The predominant environmental impacts associated with this proposal are related to the use of SCR for NOx control. The use of SCR results in emissions of ammonia, which may increase with increasing levels of NOx control. In addition, some catalysts may contain substances which are listed as hazardous waste, thereby creating an additional environmental burden. Although the use of SCR does have some environmental impacts, the disadvantages do not outweigh the benefit which would be provided by reducing nitrogen oxide emissions by 80 percent. The overwhelming benefit of NOx control by using SCR is substantiated by the fact that nearly one half of all BACT determinations have established SCR as the control measure for nitrogen oxides over the last five years.

In addition to the criteria pollutants, the impacts of toxic pollutants associated with the combustion of natural gas and No. 2 fuel oil have been evaluated. Beryllium for oil fired operation exceeds PSD significant levels. Other toxics are expected to be emitted in minimal amounts, with the total emissions combined to be less than 0.1 tons per year.

Although the emissions of the toxic pollutants could be controlled by particulate control devices such as a baghouse or scrubber, the amount of emission reductions would not warrant the added expense. As this is the case, the Department does not believe that the BACT determination would be affected by the emissions of the toxic pollutants associated with the firing of natural gas or No. 2 fuel oil.

Potentially Sensitive Concerns

With regard to controlling NOx emissions with SCR, the applicant has identified the following technical limitations:

1. SCR would reduce output of combustion turbines by one percent.
2. SCR could result in the release of unreacted quantities of ammonia to the atmosphere.
3. SCR would require handling of ammonia by plant operators. Since it is a hazardous material, there is a concern about safety and productivity of operators.
4. SCR results in contaminated catalyst from flue gas trace elements which could be considered hazardous. Safety of operators and disposal of spent catalyst is a concern.

BACT Determination by DER

NOx Control

A review of the permitting activities for combined cycle proposals across the nation indicates that SCR has been required and most recently proposed for installations with a variety of operating conditions (i.e., natural gas, fuel oil, capacity factors ranging from low to high). However, the cost and other concerns expressed by the applicant are valid.

The information that the applicant presented and Department calculations indicates that the incremental cost of controlling NOx (\$6,441/ton) for natural gas is high compared to other BACT determinations which require SCR. However, the cost of controlling NOx emissions for oil firing (\$4,600/ton) could be considered reasonable. Based on the information presented by the applicant and the studies conducted, the Department believes that the use of SCR for NOx control is not justifiable at this time as BACT. Therefore, the Department is willing to accept low NOx combustors with the firing of natural gas as the primary fuel. However, No. 2 distillate oil firing must be limited to 1/3 of the annual capacity factor. The applicant is also expected to design the facility to accommodate SCR should additional oil usage become necessary and SCR becomes a BACT requirement in the future.

SO₂ Control

For sulfur dioxide BACT is represented by firing natural gas or No. 2 fuel oil with an average sulfur content not to exceed 0.20 percent.

Other Emissions Control

The emission limitations for PM and PM₁₀, are based on previous BACT determinations for similar facilities, with the heavy metal beryllium being addressed through the particulate limitation and sulfuric acid mist being addressed through the sulfur dioxide limitation.

The emission limits for the City of Lakeland project are thereby established as follows:

Pollutant	Emission Limit	
	Natural Gas Firing	No. 2 Fuel Oil Firing
NOx	25 ppmvd @ 15% O ₂	42 ppmvd @ 15% O ₂ *
SO ₂	Natural gas as fuel	Sulfur content not to exceed 0.20%
CO	25 ppmvd @ 15% O ₂	25 ppmvd @ 15% O ₂
PM & PM ₁₀	0.006 lb/MMBtu	0.025 lb/MMBtu
Sulfuric Acid Mist	Emissions limited by natural gas and No. 2 fuel oil firing	
Beryllium	Emissions limited by natural gas and No. 2 fuel oil firing	

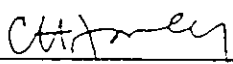
* No. 2 fuel oil usage limited to 1/3 of the total heat input on an annual basis.

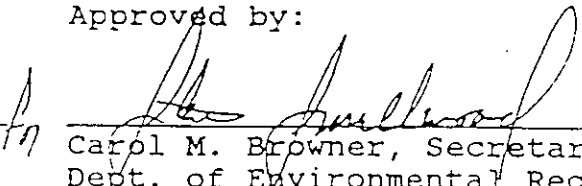
Details of the Analysis May be Obtained by Contacting:

Preston Lewis, P.E., BACT Coordinator
Department of Environmental Regulation
Bureau of Air Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Recommended by:

Approved by:


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


Carol M. Browner, Secretary
Dept. of Environmental Regulation

Date

July 19, 1991

Date

July 26, 1991

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L 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. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

**A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)****Type of Emissions Unit Addressed in This Section**

1. Regulated or Unregulated Emissions Unit? Check one:

☒ 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.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

☒ 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.

B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)**Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Gas Turbine Peaking Units 1, 2 and 3		
2. Emissions Unit Identification Number: <input type="checkbox"/> No Corresponding ID <input type="checkbox"/> Unknown *		
3. Emissions Unit Status Code: A	4. Acid Rain Unit? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Emissions Unit Major Group SIC Code: 49
6. Emissions Unit Comment (limit to 500 characters): *ARMS IDs: 007, 006, 005. Fired with diesel (No. 2) fuel and natural gas. Generator nameplate for all 3 units combined which have been regulated collectively.		

Emissions Unit Control Equipment Information**A.**

1. Description (limit to 200 characters):

2. Control Device or Method Code:

B.

1. Description (limit to 200 characters):

2. Control Device or Method Code:

C.

1. Description (limit to 200 characters):

2. Control Device or Method Code:

C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Details

1. Initial Startup Date: 1 Jan 1973		
2. Long-term Reserve Shutdown Date:		
3. Package Unit: Manufacturer:		Model Number:
4. Generator Nameplate Rating:		34 MW
5. Incinerator Information:		
	Dwell Temperature:	°F
	Dwell Time:	seconds
	Incinerator Afterburner Temperature:	°F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate:	209	mmBtu/hr
2. Maximum Incineration Rate:	lbs/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters):		
<p>Maximum heat input shown for both distillate oil and natural gas for each gas turbine. MW rating is 34.5 MW for 3 turbines (11.5 MW each).</p>		

Emissions Unit Operating Schedule

1. Requested Maximum Operating Schedule:		
	hours/day	days/week
	weeks/yr	8,760 hours/yr

**D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)**

Rule Applicability Analysis (Required for Category II Applications and Category III applications involving non Title-V sources. See Instructions.)

Not Applicable

List of Applicable Regulations (Required for Category I applications and Category III applications involving Title-V sources. See Instructions.)

See Attachment LR-EU4-D

E. EMISSION POINT (STACK/VENT) INFORMATION
(Regulated Emissions Units Only)**Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: See Att. LR-EU4-L1	
2. Emission Point Type Code: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4	
3. Descriptions of Emissions Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): Each gas turbine has a single emission point.	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:	
5. Discharge Type Code: <input type="checkbox"/> D <input type="checkbox"/> F <input type="checkbox"/> H <input type="checkbox"/> P <input type="checkbox"/> R <input checked="" type="checkbox"/> V <input type="checkbox"/> W	
6. Stack Height:	31 feet
7. Exit Diameter:	11.8 feet
8. Exit Temperature:	800 °F

9. Actual Volumetric Flow Rate:	662,400 acfm
10. Percent Water Vapor:	%
11. Maximum Dry Standard Flow Rate:	dscfm
12. Nonstack Emission Point Height:	feet
13. Emission Point UTM Coordinates:	
Zone: 17	East (km): 409.1 North (km): 3102.8
14. Emission Point Comment (limit to 200 characters):	

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)**Segment Description and Rate:** Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Distillate (No. 2) fuel oil	
2. Source Classification Code (SCC): 2-01-001-01	
3. SCC Units: 1000 gallons	
4. Maximum Hourly Rate: 1.475	5. Maximum Annual Rate: 12,921
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: 0.5	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 150	
10. Segment Comment (limit to 200 characters): Fuel usage for each gas turbine.	

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Natural gas	
2. Source Classification Code (SCC): 2-01-002-01	
3. SCC Units: Million Cubic Feet	
4. Maximum Hourly Rate: 0.226	5. Maximum Annual Rate: 1,985
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 1,024	
10. Segment Comment (limit to 200 characters): Fuel usage based on 1,024 BTU/CF natural gas which is a typical average.	

**G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)**

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
PM			NS
SO2			EL
NOX			NS
CO			NS
VOC			NS
PM10			NS

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**Pollutant Detail Information:**

1. Pollutant Emitted: SO₂	
2. Total Percent Efficiency of Control: _____ %	
3. Potential Emissions:	106.2 lb/hour 465.2 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive/Other Emissions: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 _____ to _____ tons/yr	
6. Emission Factor: 0.5 % sulfur fuel Reference: Oper. permit limit	
7. Emissions Method Code: <input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	
8. Calculation of Emissions (limit to 600 characters): 1,475 gal/hr x 7.2 lb/gal x 0.005 lbs/lb fuel x 2 lb SO₂/lbs = 106.2 lb/hr; 106.2 lb/hr x 8760 hr/yr x ton/2000 lb = 465.2 TPY	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): Emissions for distillate oil firing for each gas turbine.	

Emissions Unit Information Section 4 of 5
Allowable Emissions (Pollutant identified on front page)

A.

1. Basis for Allowable Emissions Code: Other		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units: 0.5 % sulfur		
4. Equivalent Allowable Emissions:	106.2 lb/hour	465.2 tons/year
5. Method of Compliance (limit to 60 characters): Fuel analysis; vendor supplied		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): Operating Permit Limit		

B.

1. Basis for Allowable Emissions Code:		
2. Future Effective Date of Allowable Emissions:		
3. Requested Allowable Emissions and Units:		
4. Equivalent Allowable Emissions:	lb/hour	tons/year
5. Method of Compliance (limit to 60 characters):		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):		

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)**Visible Emissions Limitations:** Visible Emissions Limitation 1 of 2

1.	Visible Emissions Subtype: VE20
2.	Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3.	Requested Allowable Opacity Normal Conditions: 20 % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour
4.	Method of Compliance: Annual VE test; EPA Method 9 if > 400 hrs/yr
5.	Visible Emissions Comment (limit to 200 characters): FDEP Rule 62-296.320(4)(b)1.; 62-297.310(7)(a)8.

Visible Emissions Limitations: Visible Emissions Limitation 2 of 2

1.	Visible Emissions Subtype: VE99
2.	Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3.	Requested Allowable Opacity Normal Conditions: % Exceptional Conditions: 100 % Maximum Period of Excess Opacity Allowed: 60 min/hour
4.	Method of Compliance: None
5.	Visible Emissions Comment (limit to 200 characters): FDEP Rule 62-210.700(1) allowed for 2 hours (120 minutes) per 24-hour for startup, shutdown or malfunction.

**J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)****Continuous Monitoring System** Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: <input type="checkbox"/> Rule <input type="checkbox"/> Other	
4. Monitor Information: Monitor Manufacturer: Model Number: Serial Number:	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

Continuous Monitoring System Continuous Monitor _____ of _____

1. Parameter Code:	2. Pollutant(s):
3. CMS Requirement: <input type="checkbox"/> Rule <input type="checkbox"/> Other	
4. Monitor Information: Monitor Manufacturer: Model Number: Serial Number:	
5. Installation Date:	
6. Performance Specification Test Date:	
7. Continuous Monitor Comment (limit to 200 characters):	

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT
TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)**

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

- ☐ The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☐ For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- ☒ None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

- ☐ The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.
- ☐ For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☒ None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code:			
PM	<input type="checkbox"/> C	<input type="checkbox"/> E	<input checked="" type="checkbox"/> Unknown
SO ₂	<input type="checkbox"/> C	<input type="checkbox"/> E	<input checked="" type="checkbox"/> Unknown
NO ₂	<input type="checkbox"/> C	<input type="checkbox"/> E	<input checked="" type="checkbox"/> Unknown
4. Baseline Emissions:			
PM	lb/hour	tons/year	
SO ₂	lb/hour	tons/year	
NO ₂		tons/year	
5. PSD Comment (limit to 200 characters):			

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION
(Regulated Emissions Units Only)**Supplemental Requirements for All Applications**

1. Process Flow Diagram
<input checked="" type="checkbox"/> Attached, Document ID: <u>LR-EU4-L1</u> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
2. Fuel Analysis or Specification
<input checked="" type="checkbox"/> Attached, Document ID: <u>LR-EU4-L2</u> <input type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
3. Detailed Description of Control Equipment
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
4. Description of Stack Sampling Facilities
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Waiver Requested
5. Compliance Test Report
<input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/> Previously Submitted, Date: _____
6. Procedures for Startup and Shutdown
<input checked="" type="checkbox"/> Attached, Document ID: <u>LR-EU4-L6</u> <input type="checkbox"/> Not Applicable
7. Operation and Maintenance Plan
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8. Supplemental Information for Construction Permit Application
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9. Other Information Required by Rule or Statute
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operation
<input checked="" type="checkbox"/> Attached, Document ID: <u>LR-EU4-L10</u> <input type="checkbox"/> Not Applicable
11. Alternative Modes of Operation (Emissions Trading)
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
12. Identification of Additional Applicable Requirements
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
13. Compliance Assurance Monitoring Plan
<input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
14. Acid Rain Permit Application (Hard Copy Required)
<input type="checkbox"/> Acid Rain Part - Phase II (Form No. 62-210.900(1)(a)) Attached, Document ID: _____
<input type="checkbox"/> Repowering Extension Plan (Form No. 62-210.900(1)(a)1.) Attached, Document ID: _____
<input type="checkbox"/> New Unit Exemption (Form No. 62-210.900(1)(a)2.) Attached, Document ID: _____
<input type="checkbox"/> Retired Unit Exemption (Form No. 62-210.900(1)(a)3.) Attached, Document ID: _____
<input checked="" type="checkbox"/> Not Applicable

ATTACHMENT LR-EU4-D
EMISSIONS UNIT REGULATIONS

ATTACHMENT LR-EU4-D
Applicable Requirements Listing - Power Plants Non-Acid/NSPS Rain Units

EMISSION UNIT ID: EU4 - Larsen Plant - Gas Turbine Peaking Units 1-3

FDEP Rules:

Stationary Sources-General:

- 62-210.700(1) - Excess Emissions (startup/shutdown/malfunction)
- 62-210.700(4) - Poor Maintenance
- 62-210.700(6) - Notification

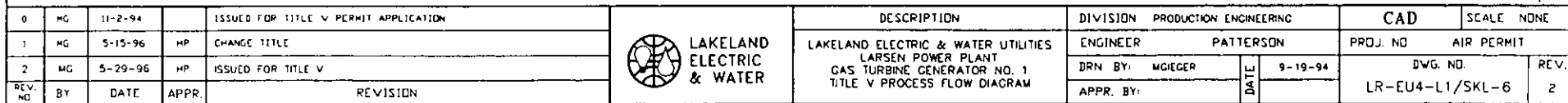
Stationary Sources-Emission Standards/RACT:

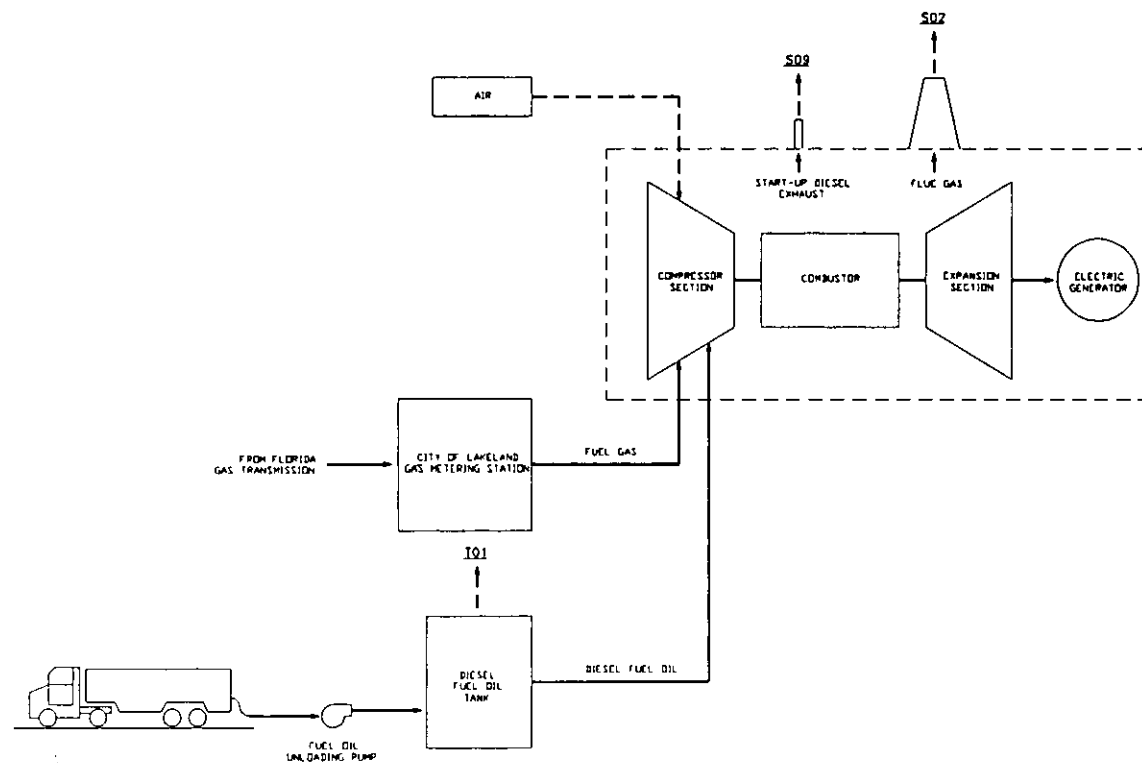
- 62-296.320(4)(b) - General VE


Stationary Sources-Emission Monitoring:

- 62-297.310(2)(a) - Operating Rate; reserved for CTs
- 62-297.310(4)(a)2. - Applicable Test Procedures; Sampling time
- 62-297.310(5) - Determination of Process Variables
- 62-297.310(7)(a)3. - Permit Renewal Test Required
- 62-297.310(7)(a)4.a. - Annual Test
- 62-297.310(7)(a)8 - CTs; Exempts Test < 400hrs/yr; 1 per 5 yr
- 62-297.310(7)(a)9. - FDEP Notification - 15 days
- 62-297.310(8)(a)(b) - Test Reports

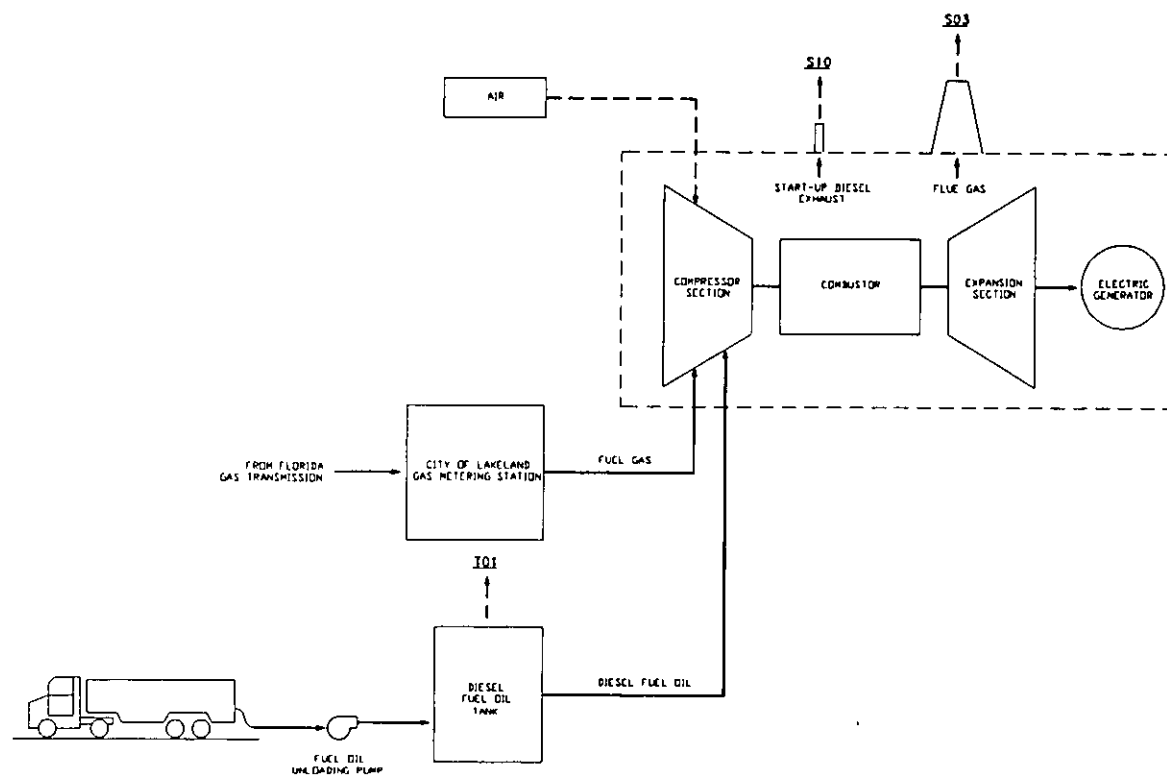
ATTACHMENT LR-EU4-L1
PROCESS FLOW DIAGRAM






0	MG	11-2-94		ISSUED FOR TITLE V PERMIT APPLICATION	 LAKELAND ELECTRIC & WATER	DESCRIPTION	DIVISION PRODUCTION ENGINEERING		CAD	SCALE NONE
1	MG	5-15-96	HP	CHANGE TITLE		LAKELAND ELECTRIC & WATER UTILITIES LARSEN POWER PLANT GAS TURBINE GENERATOR NO. 2 TITLE V PROCESS FLOW DIAGRAM	ENGINEER PATTERSON		PROJ. NO	AIR PERMIT
2	MG	5-29-96	HP	ISSUED FOR TITLE V			DRN. BY: MGIEGER	DATE	9-19-94	DWG NO.
REV. NO	BY	DATE	APPR.	REVISION			APPR. BY:			LR-EU4-L1/SKL-7
										REV. 2

SIZE B



0	MG	11-2-94		ISSUED FOR TITLE V PERMIT APPLICATION	 LAKELAND ELECTRIC & WATER	DESCRIPTION		DIVISION PRODUCTION ENGINEERING		CAD		SCALE	NONE
1	MG	5-15-96	HP	CHANGE TITLE		LAKELAND ELECTRIC & WATER UTILITIES LARSEN POWER PLANT GAS TURBINE GENERATOR NO. 3 TITLE V PROCESS FLOW DIAGRAM		ENGINEER PATTERSON		PROJ. NO.		AIR PERMIT	
2	MC	5-29-96	HP	ISSUED FOR TITLE V				DRN. BY: MGIEGER		DATE 9-19-94		DWG. NO.	
MLV-NO	BY	DATE	APPR.	REVISION				APPR. BY:				LR-EU4-L1/SKL-8	
												REV. 2	

ATTACHMENT LR-EU4-L2
FUEL ANALYSIS OR SPECIFICATION

Attachment LR-EU4-L2

Fuel Analysis

Natural Gas Analysis

<u>Parameter</u>	<u>Typical Value</u>	<u>Max Value</u>
Relative density	0.58 (compared to air)	
heat content	950 - 1124 Btu/cu ft. (HHV)	
% sulfur	0.43 grains/CCF ¹	1 grain/100 CF
% nitrogen	0.8% by volume	
% ash	negligible	

Note: The values listed are "typical" values based upon information supplied by Florida Gas Transmission (FGT). However, analytical results from grab samples of fuel taken at any given point in time may vary from those listed.

¹ Data from laboratory analysis

Attachment LR-EU4-L2

Fuel Analysis

No. 2 Fuel Oil

<u>Parameter</u>	<u>Typical Value</u>	<u>Max Value</u>
API gravity @ 60 F	30 ¹	-
Relative density	6.92 lb/gal ²	
Heat content	18,400 Btu / lb (LHV)	
% sulfur	<0.5 ²	0.5 ³
% nitrogen	0.025 - 0.030	
% ash	negligible	0.01 ¹

Note: The values listed are "typical" values based upon 1) information gathered by laboratory analysis, and 2) fuel purchasing specifications. However, analytical results from grab samples of fuel taken at any given point in time may vary from those listed.

¹ Data taken from the fuel procurement specification

² Data from laboratory analysis

³ Data from current air permit.

ATTACHMENT LR-EU4-L6
STARTUP AND SHUTDOWN PROCEDURES

ATTACHMENT LR-EU4-L6
PROCEDURES FOR STARTUP/SHUTDOWN

Startup and shutdown for these units are fully automatic.

Startup for the combustion turbine begins with "lighting off" of the machines on either natural gas or light distillate oil.

Corrective actions may include switching the unit from automatic (remote) to local control, or changing fuel combination(s). Best operating practices are adhered to and all efforts to minimize both the level and duration of excess emissions are undertaken.

Shutdown is performed by reducing the unit load (electrical production) to a minimum level, opening the breaker (which disconnects the unit from the system electrical grid), shutting off the fuel and coasting down to stop. The CT is then put "on turning gear" to prevent possible disfiguration of the turbine components.

ATTACHMENT LR-EU4-L10
ALTERNATIVE METHODS OF OPERATION

ATTACHMENT LR-EU4-L10
ALTERNATIVE METHODS OF OPERATION
GAS TURBINES

The gas turbine can operate on both natural gas and No. 2 fuel oil. The maximum sulfur content in the fuel oil shall not exceed 0.5 percent. This unit can operate for the entire year (i.e., 8,760 hours) and can fire either fuel oil or natural gas fire with no restrictions on hours of operation.

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through L 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. Some of the subsections comprising the Emissions Unit Information Section of the form are intended for regulated emissions units only. Others are intended for both regulated and unregulated emissions units. Each subsection is appropriately marked.

**A. TYPE OF EMISSIONS UNIT
(Regulated and Unregulated Emissions Units)****Type of Emissions Unit Addressed in This Section**

1. Regulated or Unregulated Emissions Unit? Check one:

- ☐] 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.

2. Single Process, Group of Processes, or Fugitive Only? Check one:

- ☐] 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.

**B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)****Emissions Unit Description and Status**

1. Description of Emissions Unit Addressed in This Section (limit to 60 characters): Facility-wide Unregulated Units		
2. Emissions Unit Identification Number: <input type="checkbox"/> No Corresponding ID <input checked="" type="checkbox"/> Unknown		
3. Emissions Unit Status Code: A	4. Acid Rain Unit? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Emissions Unit Major Group SIC Code: 49
6. Emissions Unit Comment (limit to 500 characters): This emission unit information section pertains to all unregulated emission activities at the facility. All tanks with greater than 10,000 gallon capacity installed prior to July 23, 1984. See LR-EU5-B6.		

Emissions Unit Control Equipment Information**A.**

1. Description (limit to 200 characters):
2. Control Device or Method Code:

B.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

C.

1. Description (limit to 200 characters):
2. Control Device or Method Code:

F. SEGMENT (PROCESS/FUEL) INFORMATION
(Regulated and Unregulated Emissions Units)**Segment Description and Rate:** Segment 1 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Residual Oil	
2. Source Classification Code (SCC): A2505030060	
3. SCC Units: 1,000 gallons	
4. Maximum Hourly Rate:	5. Maximum Annual Rate: 52,767
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters): Annual rate based on inputs to FFFSG Units 6 and 7 (EU 1 and 2).	

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): Distillate Oil	
2. Source Classification Code (SCC): A2505030090	
3. SCC Units: 1,000 gallons	
4. Maximum Hourly Rate:	5. Maximum Annual Rate: 62,678
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur:	8. Maximum Percent Ash:
9. Million Btu per SCC Unit:	
10. Segment Comment (limit to 200 characters): Annual rate based on inputs to Combined Cycle Unit 8 (EU 3), and GTs 1, 2, and 3 (EU 4).	

G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
VOC			NS
PM			NS
NOX			NS

**K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT
TRACKING INFORMATION
(Regulated and Unregulated Emissions Units)**

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

If the emissions unit addressed in this section emits particulate matter or sulfur dioxide, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for particulate matter or sulfur dioxide. Check the first statement, if any, that applies and skip remaining statements.

- ☐ The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☐ For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- ☒ None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

2. Increment Consuming for Nitrogen Dioxide?

If the emissions unit addressed in this section emits nitrogen oxides, answer the following series of questions to make a preliminary determination as to whether or not the emissions unit consumes PSD increment for nitrogen dioxide. Check first statement, if any, that applies and skip remaining statements.

- ☐ The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and the source consumes increment.
- ☐ The facility addressed in this application is classified as an EPA major source and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and the source consumes increment.
- ☐ For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and the emissions unit consumes increment.
- ☒ None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code:		
PM	<input type="checkbox"/> C	<input type="checkbox"/> E <input checked="" type="checkbox"/> Unknown
SO ₂	<input type="checkbox"/> C	<input type="checkbox"/> E <input checked="" type="checkbox"/> Unknown
NO ₂	<input type="checkbox"/> C	<input type="checkbox"/> E <input checked="" type="checkbox"/> Unknown
4. Baseline Emissions:		
PM	lb/hour	tons/year
SO ₂	lb/hour	tons/year
NO ₂		tons/year
5. PSD Comment (limit to 200 characters):		

ATTACHMENT LR-EU5-B6
EMISSIONS UNIT COMMENT