



CITY HALL
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TALLAHASSEE, FL
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STEVE MEISBURG
Mayor Pro Tem

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Commissioner
CHARLES E. BILLINGS
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DEBBIE LIGHTSEY
Commissioner

ANITA R. FAVORS
City Manager
GARY HERNDON
Interim City Treasurer-Clerk

JAMES R. ENGLISH
City Attorney
SAM M. McCALL
City Auditor

November 13, 2001

CERTIFIED MAIL

Mr. Clair H. Fancy, Chief
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Mail Station 5505

RECEIVED

NOV 15 2001

BUREAU OF AIR REGULATION

**Re: Permit Revision Request
Unit 8 Combined Cycle Combustion Turbine and Auxiliary Boiler
Permits PSD-FL-239, 1290001-002-AC, and 1290001-003-AV
Site Certification PA 97-35
Sam O. Purdom Generating Station**

Dear Mr. Fancy:

On November 1, 2001, representatives of the City (including myself) met with Mssrs. Al Linero and Jeff Koerner of your staff to discuss the above-referenced PSD and Title V permits for the City of Tallahassee's (City) new Unit No. 8 at the Sam O. Purdom Generating Station in 1998. Both the construction on Unit No. 8 and the initial performance tests have been completed. As the shakedown period of the Unit 8 combined-cycle combustion turbine comes to completion, the City has noted some clarifications that would improve the air permits applicable to the Sam O. Purdom Generating Station. The following is a brief summary of the clarifications the City is seeking:

Heat Input And Temperature Reference Correction - Upon gathering data during the shakedown of the unit, the City has identified that the maximum heat input rate can potentially be greater than the design information originally supplied by General Electric Corporation (GE). This potential increase in maximum heat input rate is the result of the unit achieving a higher electrical output than originally guaranteed and to provide an adequate margin for compliance due to the variation in unit operational characteristics over time. Additionally, the GE design heat input is referenced to the compressor air inlet as opposed to the ambient air

An All-America City

temperature referenced in the permit. Lastly, in order to make it easier to utilize the GE correction curves, the City is requesting that the permit temperature condition be changed from 95°F to 59°F (ISO). Thus, the City is requesting that PSD Permit Specific Condition A.2 be revised as follows:

Specific Condition A.2 - The maximum heat input rates, based on the lower heating value (LHV) of each fuel to Purdom Unit 8 at ambient compressor inlet conditions of 95°F ~~59°F~~ temperature, 60% relative humidity, and 14.7 psi pressure shall not exceed ~~1,467.7~~ 1,696.0 mmBtu/hr when firing natural gas, or ~~1,659.5~~ 1,896.6 mmBtu/hr when firing No. 2 fuel oil. These maximum heat input rates will vary depending upon ambient compressor inlet conditions and the combustion turbine characteristics. Manufacturer's curves corrected for site conditions or equations for correction to other ambient compressor inlet conditions shall be provided to the Department of Environmental Protection (DEP) within 45 days of completing the initial compliance testing. These curves or equations shall be used to establish the maximum allowable heat inputs at other ambient compressor inlet conditions for compliance determination. (Title V Specific Conditions F.5 and F.34 would be corrected accordingly)

Authorization for Excess Emissions – Based on experience during the shakedown of Unit 8 as detailed in the February 3, 2001, letter submitted to your Department, the City requests authorization of the following causes of excess emissions.

Excess emissions will also occur during dry low-NO_x combustor (DLN) tuning that is required to take place following each and every combustor inspection (currently scheduled to occur on an annual basis). This tuning is required any time combustor parts are replaced in order to allow GE to modify the combustion process to minimize burner dynamics and minimize the NO_x emissions. Also, during combustor tuning, the unit is required to operate at load ranges below Mode 6 operation (Dry Low NO_x configuration). Based on the City's experience with the first combustor inspection, this required tuning is not something that can be completed within a two-hour period. However, it is also worth noting that there is no incentive to operate this unit longer than necessary at these load ranges. The excess emissions will continue to count toward the annual facility-wide NO_x emissions cap at the plant. The City therefore, requests that excess emissions be authorized for up to 72 hours annually for DLN tuning.

Lastly, when the unit has tripped off-line, the City has witnessed excess emissions in linked events (e.g., a malfunction immediately followed by an

automated shutdown of the unit). In those circumstances, the period of excess emissions was extended as the City attempted to correct the unit's operation to minimize such emissions. Thus, the City requests that excess emissions resulting during warm and cold startups be authorized up to 6 hours during any 24-hour period and excess emissions resulting from hot startups be allowed up to 4 hours during any 24-hour period. This would be inclusive of any linked event (e.g., malfunction, load changes or fuel switching).

Below are revised PSD permit specific conditions that the City is requesting (requested changes are highlighted with strike through and underlining).

Specific Condition B.1, Footnote (a) - 30-day rolling average excluding startup, shutdown, malfunction, DLN tuning, and fuel switching (see Permitting Note under Emission Unit -012 Emission Limitations and Standards Section in the Title V Permit)

Specific Condition B.3 - Oxides of nitrogen emissions when firing natural gas shall not exceed 12 ppmvd at 15% O₂ on a 30-day rolling average basis (except during periods of startup, shutdown, malfunction, DLN tuning, or fuel switching), as measured by CEMS. When monitoring data is not available, substitution for missing data shall be handled as required by Title IV (40 CFR 75) to calculate of the 30 day rolling average. (see Title V Specific Condition F.11)

Specific Condition B.4 - Oxides of nitrogen emissions when firing No. 2 fuel oil shall not exceed 42 ppmvd at 15% O₂ on a 30-day rolling average basis (except during periods of startup, shutdown, malfunction, DLN tuning, or fuel switching), as measured by CEMS, when fuel bound nitrogen values are less than or equal to 0.015 percent. (see Title V Specific Condition F.12)

Specific Condition C.1 - Excess emissions resulting from startup, shutdown, malfunction, DLN tuning, or fuel switching shall be permitted provided that best operational practices are adhered to and the duration of excess emissions shall be minimized but in no case exceed ~~four~~ 72 hours annually for DLN tuning and six hours in any 24-hour period for cold/warm startup, four hours in any 24-hour period for hot startup, or two hours in any 24-hour period for other reasons unless specifically authorized by DEP for longer duration.

Specific Condition F.1 - The permittee shall install, calibrate, maintain, and operate a continuous emission monitor in the stack to measure and record the nitrogen oxides emissions from Unit 8. Thirty day rolling average periods when NO_x emissions (ppmvd @ 15% oxygen) are above the BACT standards (12/42 ppmvd for gas/oil) shall be reported to the DEP Northwest District Office pursuant to Rule 62-4.160(8), F.A.C. The continuous emission monitoring systems must comply with the certification and quality assurance, and other applicable requirements from 40 CFR 75. Periods of startup, shutdown, malfunction, DLN tuning, and fuel switching shall be monitored, recorded, and reported as excess emissions when emission levels exceed the standards in Table 1 following the format of 40 CFR 60.7 (1997 version). The NO_x CEMS shall be used in lieu of the water/fuel monitoring system and fuel bound nitrogen (FBN) monitoring required for reporting excess emissions in accordance with 40 CFR 60.334(c)(1), Subpart GG (1997 version). The calibration of the water/fuel monitoring device required in 40 CFR 60.335 (c)(2) (1997 version) will be replaced by the 40 CFR 75 certification tests of the NO_x CEMS. Upon request from DEP, the CEMS emission rates for NO_x on Unit 8 shall be corrected to ISO conditions to demonstrate compliance with the NO_x standard established in 40 CFR 60.332. (see Title V Specific Condition F.18)

Although the correction in heat input will correlate to a correction in emission rates (g/sec, lb/hr and tons/yr) of pollutants, modeling results presented in the original permit application indicate enough tolerance to allow for the incremental corrections presented in this submittal. Tables 1 and 2 (Attachment A) summarize the modeling results presented in the Site Certification Application submitted in March 1997. As presented in Tables 1 and 2, only the 24-hour PSD analysis for sulfur dioxide concentrations in the Bradwell Bay National Wilderness Area (NWA) approaches the respective regulatory limit (in this case, the Class I PSD increment). However, the primary, if not entire source of the 24-hour sulfur dioxide concentration identified in the Bradwell Bay NWA originates from facilities other than the Sam O. Purdom Generating Station. It should also be noted that the modeling of the annual NO_x and SO₂ emissions is not affected because of the facility-wide caps maintained at the facility.

The City is also seeking a revision to Permit No. 1290001-002-AC for the auxiliary boiler that operates at the Sam O. Purdom Generating Station. To allow for steam to be available at all times (including the period when either Unit 7 or Unit 8 are initially starting up) the City is requesting the permit language to be revised to allow auxiliary boiler operation when either Unit 7

or Unit 8 are not operating. Below is revised permit specific conditions that the City is requesting (requested changes are highlighted with strike through and underlining).

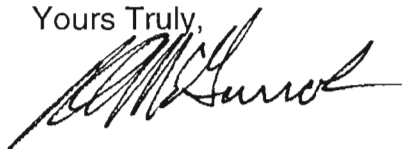
Specific Condition 6 – This emission unit shall only be operated as an auxiliary source of steam when either Unit 7 or Unit 8~~the existing generating units (boilers 5, 6, & 7)~~ are not operating. (see Title V Permitting Note in Subsection E. and Specific Condition E.5)

As part of this submittal, the City is providing amended permit application pages (Attachment B) that reflect the changes described above and additional changes to the actual date of construction, additional exempt emissions units that have been employed at the site since the most recent revision to the Title V permit, and changes to the construction permit for the auxiliary boiler.

Upon issuance of a revised permit, the City requests that the Department provide a copy of the final permit to Mr. Hamilton (Buck) Oven of the Siting Office, for conformance in the Site Certification.

We understand that no fee is required because we have an existing Title V permit and the requested changes do not trigger New Source Review. If you have any questions regarding this permit revision request, please feel free to contact either myself at (850) 891-5534 or Ms. Jennette Curtis at (850) 891-8850.

Yours Truly,



Robert McGarrah, Superintendent
Electric Production Division

Attachments

cc: Hamilton (Buck) Oven, DEP
Al Linero, DEP
Jeff Koerner, DEP
Scott Sheplak, DEP
G. King, COT
B. Cowart, COT
J. Curtis, COT

Attachment A

Table 1
Summary of PSD/FAAQs Analysis

Pollutant	Class I PSD Increment (ug/m ³)	Max Refined Concentration St. Marks NWA (ug/m ³)	Max Refined Concentration Bradwell Bay NWA (ug/m ³)	Class II PSD Increment (ug/m ³)	Max Refined Concentration Class II Areas (ug/m ³)	FAAQs (ug/m ³)	Max Refined Concentration FAAQs (ug/m ³)	Background Concentration (ug/m ³)
Sulfur Dioxide (SO ₂) – 3 hour	25	10.7	16.9	512	14.4	1300	402.1	183
Sulfur Dioxide (SO ₂) – 24 hour	5	2.7	4.9	91	2.4	260	137.2	71
Sulfur Dioxide (SO ₂) – Annual	2	<0.00001 ⁽³⁾	<0.00001 ⁽³⁾	20	<0.00001 ⁽³⁾	60	25.7	9
Particulate Matter (PM ₁₀) – 24 hour	8	0.73	0.0023	30	3.3	150	83.8	47
Particulate Matter (PM ₁₀) – Annual	4	0.11	0.16	17	0.32	50	19.1	22.4
Nitrogen Dioxide (NO ₂) – Annual	2.5	0.91	0.57	25	6.2	100	21.4	14
Carbon Monoxide (CO) – 1 hour	--	--	--	--	--	40,000	103.1	8050
Carbon Monoxide (CO) – 8 hour	--	--	--	--	--	10,000	16.6	5290
Lead (Pb) – 24 hour	--	--	--	--	--	1.5	0.011	0.03
<p>(1) – Highest second high concentrations for this analysis (2) – Rule 62-204.260, FAC (3) – Maximum impact zero or negative due to increment expanding source</p>								

Table 2
Summary of Hazardous Air Pollutants Analysis Versus Draft FARCS

Pollutant	8-Hour		24-Hour		Annual	
	Maximum ⁽¹⁾ Modeled Concentration (ug/m ³)	Draft FARC ⁽²⁾ (ug/m ³)	Maximum ⁽¹⁾ Modeled Concentration (ug/m ³)	Draft FARC ⁽²⁾ (ug/m ³)	Maximum ⁽¹⁾ Modeled Concentration (ug/m ³)	Draft FARC ⁽²⁾ (ug/m ³)
Arsenic (As)	9.85E-03	0.1	5.42E-03	0.02	1.78E-05	2.30E-04
Beryllium (Be)	3.94E-04	0.02	2.17E-04	0.005	1.07E-06	4.20E-04
Cadmium (Cd)	4.45E-03	0.02	2.45E-03	0.005	1.36E-05	5.60E-04
Chromium (Cr)	1.97E-02	0.5	1.09E-02	0.1	1.52E-04	NA
Lead (Pb)	2.71E-02	0.5	1.49E-02	0.1	2.07E-04	9.00E-02
Manganese (Mn)	7.46E-02	50	4.11E-02	12	1.07E-03	5.00E-02
Mercury (Hg)	2.67E-03	0.1	1.47E-03	0.02	4.97E-06	3.01E-01
Nickel (Ni)	4.31E-01	10	2.37E-01	2.4	3.89E-03	4.20E-03
Cobalt (Co)	1.13E-02	0.5	6.20E-03	0.1	2.95E-05	NA
Antimony (Sb)	8.15E-03	5	4.49E-03	1.2	7.14E-05	3.00E-01
Vanadium (V)	1.38E-01	0.5	7.59E-02	0.1	2.73E-04	2.00E+01
Polycyclic Organic Matter (POM)	5.33E-03	NA	2.93E-03	NA	7.79E-05	NA
Benzo(a)Pyrene (Ben(a)P)	1.14E-06	NA	6.28E-07	NA	1.32E-08	3.00E-04
Benzene	3.30E-04	30	1.82E-04	7	1.29E-05	1.20E-01
Toluene	2.97E-03	1880	1.64E-03	448	4.17E-05	4.00E+02
Selenium (Se)	4.05E-03	2	2.23E-03	0.5	1.72E-05	NA
Hydrochloric Acid (HCl)	2.01E+00	70	1.11E+00	17	2.45E-02	7.00E+00
Hydrogen Fluoride (HF)	3.04E-01	26	1.67E-01	6.2	3.69E-03	NA
Dioxin (2,3,7,8-TCDD)	2.50E-09	NA	1.37E-09	NA	2.88E-11	2.20E-08
Formaldehyde (HCOH)	3.58E-02	3.7	1.97E-02	0.9	5.41E-04	7.70E-02
(1) - Highest concentration for this analysis						
(2) - FDEP, 1995						

Attachment B

Department of Environmental Protection

DIVISION OF AIR RESOURCES MANAGEMENT

APPLICATION FOR AIR PERMIT - LONG FORM

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

I. APPLICATION INFORMATION

This section of the Application for Air Permit form identifies the facility and provides general information on the scope and purpose of this application. This section also includes information on the owner or authorized representative of the facility (or the responsible official in the case of a Title V source) and the necessary statements for the applicant and professional engineer, where required, to sign and date for formal submittal of the Application for Air Permit to the Department. If the application form is submitted to the Department using ELSA, this section of the Application for Air Permit must also be submitted in hard-copy.

Identification of Facility Addressed in This Application


Enter the name of the corporation, business, governmental entity, or individual that has ownership or control of the facility; the facility site name, if any; and the facility's physical location. If known, also enter the facility identification number.

1. Facility Owner/Company Name: City of Tallahassee	
2. Site Name: Sam O. Purdom Generating Station	
3. Facility Identification Number: 1290001 [] Unknown	
4. Facility Location: Street Address or Other Locator: 667 Port Leon Drive City: St. Marks County: Wakulla Zip Code: 32355	
5. Relocatable Facility? [] Yes [X] No	6. Existing Permitted Facility? [X] Yes [] No

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	
2. Permit Number:	
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official: Robert E. McGarrah, Production Superintendent
2. Owner/Authorized Representative or Responsible Official Mailing Address: Organization/Firm: City of Tallahassee, Electric Utility Street Address: 2602 Jackson Bluff Road City: Tallahassee State: Florida Zip Code: 32304
3. Owner/Authorized Representative or Responsible Official Telephone Numbers: Telephone: (904) 891 - 5534 Fax: (904) 891 - 5162
4. Owner/Authorized Representative or Responsible Official Statement: <i>I, the undersigned, am the owner or authorized representative* of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof. I understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.</i>  _____ Signature 11/13/01 _____ Date

* Attach letter of authorization if not currently on file.

Scope of Application

This Application for Air Permit addresses the following emissions unit(s) at the facility. An Emissions Unit Information Section (a Section III of the form) must be included for each emissions unit listed.

Emissions Unit ID	Description of Emissions Unit	Permit Type
EU01	Unregulated Particulate Sources	
EU02	Unregulated VOC Sources	
EU03	Combustion Turbine No. 1	
EU04	Combustion Turbine No. 2	
EU11	Boiler No. 7	
EU12	Auxiliary Boiler	
EU13	Unit 8 Combustion Turbine	

Purpose of Application and Category

Check one (except as otherwise indicated):

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

This Application for Air Permit is submitted to obtain:

- Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.
- Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number: _____

- Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed: _____

- Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number: _____

Operation permit to be revised: _____

- Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application. Also check Category III.

Operation permit to be revised/corrected:

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

Operation permit to be revised: PSD-FL-239 / Title V 1290001-003-AV

Reason for revision: To address actual conditions of unit's performance

Category II: All Air Operation Permit Applications Subject to Processing Under Rule 62-210.300(2)(b), F.A.C.

This Application for Air Permit is submitted to obtain:

- Initial air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s): _____

- Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed: _____

- Air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit to be revised: _____

Reason for revision: _____

Category III: All Air Construction Permit Applications for All Facilities and Emissions Units

This Application for Air Permit is submitted to obtain:

- Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

Current operation permit number(s), if any:

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

Current operation permit number(s): _____

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

Application Processing Fee

Check one:

[] Attached - Amount: \$_____

[X] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations:

Pursuant to PSD Permit No. FL-239, the City of Tallahassee's Electric Department is completing the commissioning of a new 250 mega-Watt combined cycle gas turbine and an associated cooling tower at its Sam O Purdom Generating Station in St. Marks, Wakulla County, Florida (Facility ID No. 1290001).

The purpose of this submittal is to correct PSD Permit No. FL-239 and Title V Permit No. 1290001-003-AV to reflect the as-built Unit 8 combined-cycle combustion turbine. The corrections include a change in the heat input rate and appropriately correspond the combustor inlet temperature to the heat input rate. The City is also seeking authorization for additional causes of excess emissions that have been noted during the shakedown of Unit 8.

2. Projected or Actual Date of Commencement of Construction:

~~October 1, 1998~~ Projected
January 1, 1999

3. Projected Date of Completion of Construction:

Actual: July 2000

Professional Engineer Certification

1. Professional Engineer Name: **Karl Bauer**
Registration Number: **45808**

2. Professional Engineer Mailing Address:

Organization/Firm: **City of Tallahassee**
Street Address: **300 South Adams Street, Mail Box A-36**
City: **Tallahassee** State: **Florida** Zip Code: **32301**

3. Professional Engineer Telephone Numbers:

Telephone: **(850) 891-8851** Fax: **(850) 891-8277**

4. Professional Engineer Statement:

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

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

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

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

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

If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed ~~or modified~~ emissions units (check here [X] if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed ~~or modified~~ in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Karl Bauer

Signature

11/13/01

Date

(seal) *Karl Bauer*
11/13/01

* Attach any exception to certification statement.

DEP Form No. 62-210.900(1) - Form
Effective: 3/21/96

Application Contact

1. Name and Title of Application Contact: Jennette Curtis Environmental Resources Director
2. Application Contact Mailing Address: Organization/Firm: City of Tallahassee, Electric Utility Street Address: 3rd Floor, 300 South Adams Street City: Tallahassee State: Florida Zip Code: 32301
3. Application Contact Telephone Numbers: Telephone: (904) 891 -8850 Fax: (904) 891-8277

Application Comment

This package includes revised pages from the original Prevention of Significant Deterioration (PSD) permit application and supplementary Title V application, submitted in March 1997 as an appendix to the Site Certification application.

The purpose of this submittal is to correct existing permit language to reflect the as-built Unit 8 combined-cycle combustion turbine. The corrections include a change in the heat input rate and appropriately correspond the combustor inlet temperature to the heat input rate. The City is also seeking authorization for additional causes of excess emissions that have been noted during the shakedown of Unit 8.

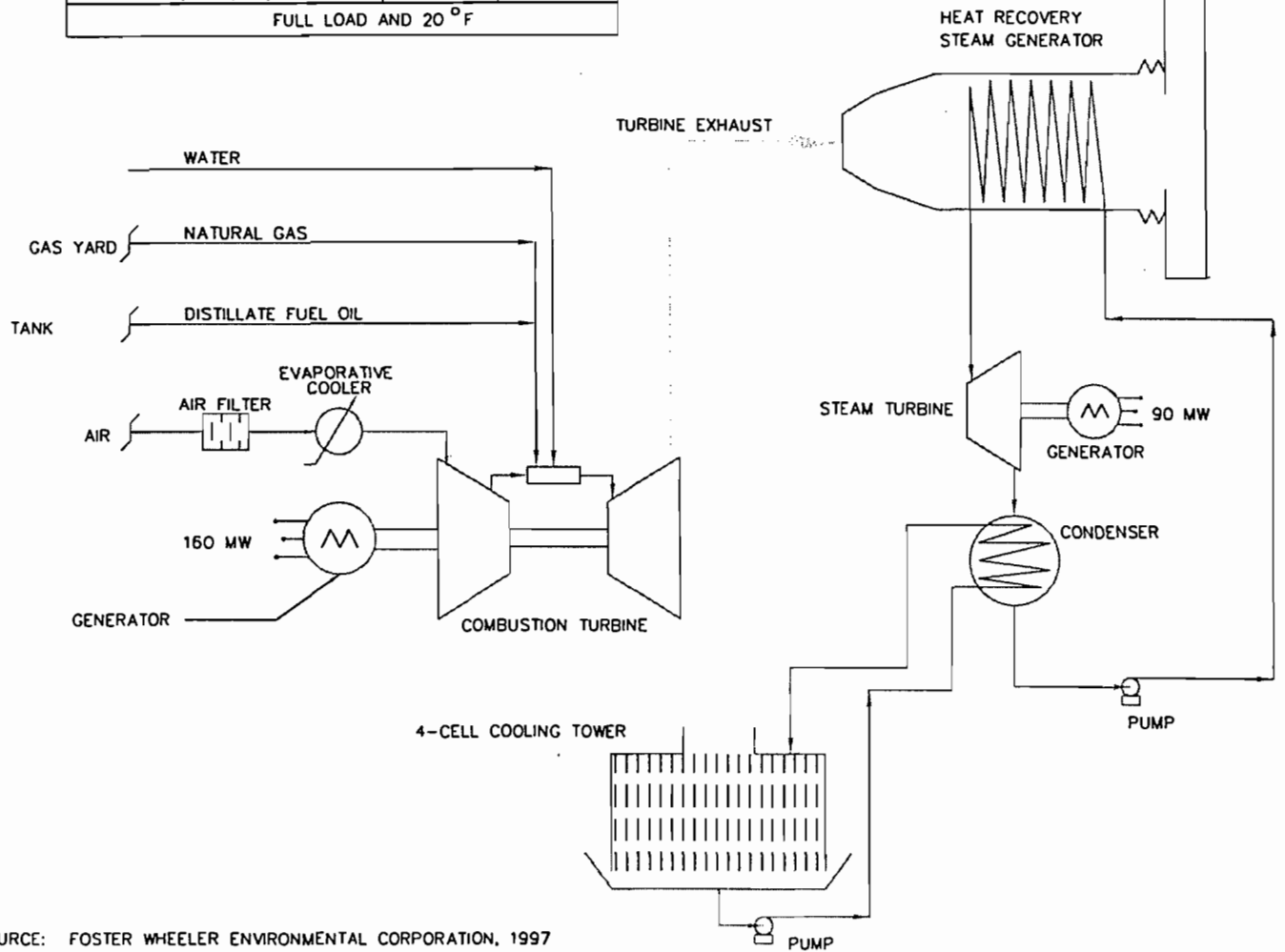
Other revisions include the addition of exempt emissions units that were employed at the Purdom Generating Station since the application submitted in March 1997.

Facility Regulatory Classifications

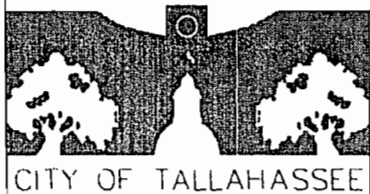
1. Small Business Stationary Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
2. Title V Source? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. Synthetic Non-Title V Source? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Synthetic Minor Source of Pollutants Other than HAPs? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6. Major Source of Hazardous Air Pollutants (HAPs)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
7. Synthetic Minor Source of HAPs? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8. One or More Emissions Units Subject to NSPS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
9. One or More Emission Units Subject to NESHAP? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
10. Title V Source by EPA Designation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11. Facility Regulatory Classifications Comment (limit to 200 characters): <p>The Purdom Generating Station is an existing major source under Title I of the Clean Air Act. The project, as proposed, triggers PSD for particulate matter (TSP), PM10, and carbon monoxide. The application package includes a PSD (BACT) evaluation for these pollutants. The City of Tallahassee is licensing the project under the Power Plant Siting Act. As allowed under Rule 62-213.420(1)(a)2., F.A.C., the site certification application includes a supplemental Title V application.</p>

GE OPERATING DATA		
PARAMETER	NATURAL GAS	DISTILLATE FUEL OIL
HEAT INPUT (MMBTU/HR) - LHV	1816.4	2038.8
FEED RATE (MMCF/HR)	2.01	N/A
FEED RATE (KGAL/HR)	N/A	15.45
FULL LOAD AND 20 °F		

EU13 - EXHAUST PARAMETERS
EXHAUST TEMP. - 171 TO 203 °F
STACK HEIGHT - 200'
SO2 EMISSIONS - 80 TPY
NOx EMISSIONS - 467 TPY
OPACITY - 10% EXCEPT AS ALLOWED



SOURCE: FOSTER WHEELER ENVIRONMENTAL CORPORATION, 1997



SIMPLIFIED PROCESS FLOW DIAGRAM
 PURDOM UNIT 8 PROJECT - ST MARKS, FLORIDA
 REVISED: NOVEMBER 9, 2001

Figure

Purdom Unit 8

**TABLE 2-1
COMBINED CYCLE UNIT 8
ESTIMATED⁽¹⁾ PERFORMANCE ON NATURAL GAS (100% LOAD)^(1A)**

CONDITIONS			
Inlet Ambient Temperature (°F)	20	59	95
Ambient Relative Humidity (%)	60	60	60
Ambient Pressure (lb/in ²)	14.7	14.7	14.7
Maximum Heat Input Rate (mmBtu/hr) ⁽²⁾	1,816.41 68	1,696.01 5	1,526.41
Evaporative Cooler	2.2	63.2	467.7
	Off	Off	On
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	3334	3129	2726
Oxides of Nitrogen (NO _x) (at 15% O ₂) (9ppmvd)	6762	6358	5654
Sulfur Dioxide (SO ₂) ⁽³⁾	5554	5147	4644
Particulate Matter (PM ₁₀)	9.89	9.89	9.49
Volatile Organic Compounds (non-methane HC)	3.23	3.02 8	2.72 6
Lead (Pb)	N/A	N/A	N/A
Asbestos	N/A	N/A	N/A
Beryllium (Be)	N/A	N/A	N/A
Mercury (Hg) ⁽⁴⁾	1.414 31E-	1.324 22E	1.194 14
Vinyl Chloride	06	-06	E-06
Total Fluorides (Fl)	N/A	N/A	N/A
Sulfuric Acid Mist (H ₂ SO ₄) ⁽⁵⁾	N/A	N/A	N/A
Reduced Sulfur Compounds	5.55 4	5.14 7	4.64 4
Total Reduced Sulfur	N/A	N/A	N/A
	N/A	N/A	N/A
STACK PARAMETERS			
Stack Height (ft) (AGL)	200	200	200
Stack Diameter (ft)	16.5	16.5	16.5
Stack Gas Temperature (°F)	190	193	198
Stack Gas Exit Velocity (ft/sec)	8680	8175	7670
^(1A) Updated to reflect revised maximum heat input rate			
⁽¹⁾ Emission estimates based on manufacturer's data (GE, 1996).			
⁽²⁾ The heat input rate is based on the lower heating value of the fuel.			
⁽³⁾ Sulfur dioxide emissions based on 10 grains/100 SCF total sulfur in natural gas and 95% conversion.			
⁽⁴⁾ Emission factor from (EPRI 1994)			
⁽⁵⁾ H ₂ SO ₄ emissions based on 5% of sulfur in fuel.			
AGL = Above ground level			
N/A = No emission factor available or no emissions expected.			

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TABLE 2-2 COMBINED CYCLE UNIT 8 ESTIMATED ⁽¹⁾ PERFORMANCE ON NATURAL GAS (75% LOAD)^(1A)			
CONDITIONS			
Inlet Ambient Temperature (°F)	20	59	95
Ambient Relative Humidity (%)	60	60	60
Ambient Pressure (lb/in ²)	14.7	14.7	14.7
Maximum Heat Input Rate (mmBtu/hr) ⁽²⁾	<u>1,469,347.36</u>	<u>1,382,747.2</u>	<u>1,251,747.7</u>
Evaporative Cooler	Off	Off	Off
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	<u>3028</u>	<u>2826</u>	<u>2524</u>
Oxides of Nitrogen (NO _x) (at 15% O ₂) (9 ppmvd)	<u>5459</u>	<u>5147</u>	<u>4644</u>
Sulfur Dioxide (SO ₂) ⁽³⁾	<u>4441</u>	<u>4138</u>	<u>3736</u>
Particulate Matter (PM ₁₀)	<u>9.89</u>	<u>9.89</u>	<u>9.49</u>
Volatile Organic Compounds (non-methane HC)	<u>2.624</u>	<u>2.422</u>	<u>2.322</u>
Lead (Pb)	N/A	N/A	N/A
Asbestos	N/A	N/A	N/A
Beryllium (Be)	N/A	N/A	N/A
Mercury (Hg) ⁽⁴⁾	<u>1.14406E-</u>	<u>1.08E-</u>	<u>9.76938E</u>
Vinyl Chloride	06	<u>06994E-</u>	-07
Total Fluorides (Fl)	N/A	07	N/A
Sulfuric Acid Mist (H ₂ SO ₄) ⁽⁵⁾	N/A	N/A	N/A
Reduced Sulfur Compounds	<u>4.441</u>	N/A	<u>3.736</u>
Total Reduced Sulfur	N/A	<u>4.138</u>	N/A
	N/A	N/A	N/A
	N/A	N/A	N/A
STACK PARAMETERS			
Stack Height (ft) (AGL)	200	200	200
Stack Diameter (ft)	16.5	16.5	16.5
Stack Gas Temperature (°F)	171	185	190
Stack Gas Exit Velocity (ft/sec)	<u>6863</u>	<u>6661</u>	<u>5957</u>
^(1A) Updated to reflect revised maximum heat input rate ⁽¹⁾ Emission estimates based on manufacturer's data (GE, 1996). ⁽²⁾ The heat input rate is based on the lower heating value of the fuel. ⁽³⁾ Sulfur dioxide emissions based on 10 grains/100 SCF total sulfur in natural gas and 95% conversion. ⁽⁴⁾ Emission factor from (EPRI 1994) ⁽⁵⁾ H ₂ SO ₄ emissions based on 5% of sulfur in fuel. AGL = Above ground level N/A = No emission factor available or no emissions expected.			

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TABLE 2-3 COMBINED CYCLE UNIT 8 ESTIMATED ⁽¹⁾ PERFORMANCE ON NATURAL GAS (50% LOAD)^(1,4)			
CONDITIONS			
Inlet Ambient Temperature (°F)	20	59	95
Ambient Relative Humidity (%)	60	60	60
Ambient Pressure (lb/in ²)	14.7	14.7	14.7
Maximum Heat Input Rate (mmBtu/hr) ⁽²⁾	<u>1,169.94</u> 08	<u>1,107.14</u> 0	<u>1,003.69</u> 6
Evaporative Cooler	3-5 Off	20-4 Off	5 Off
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	<u>60</u> 56	<u>58</u> 53	<u>52</u> 50
Oxides of Nitrogen (NO _x) (at 15% O ₂) (9 ppmvd)	<u>42</u> 39	<u>40</u> 37	<u>36</u> 35
Sulfur Dioxide (SO ₂) ⁽³⁾	<u>25</u> 23	<u>34</u> 34	<u>30</u> 29
Particulate Matter (PM ₁₀)	<u>9.8</u> 9	<u>9.8</u> 9	<u>9.4</u> 9
Volatile Organic Compounds (non-methane HC)	<u>3.02</u> -8	<u>2.82</u> -6	<u>2.92</u> -8
Lead (Pb)	N/A	N/A	N/A
Asbestos	N/A	N/A	N/A
Beryllium (Be)	N/A	N/A	N/A
Mercury (Hg) ⁽⁵⁾	<u>9.138</u> -45E-	<u>8.647</u> -96E	<u>7.837</u> -53E
Vinyl Chloride	07	-07	-07
Total Fluorides (Fl)	N/A	N/A	N/A
Sulfuric Acid Mist (H ₂ SO ₄) ⁽⁶⁾	N/A	N/A	N/A
Reduced Sulfur Compounds	<u>3.62</u> -3	<u>3.43</u> -4	<u>3.02</u> -9
Total Reduced Sulfur	N/A	N/A	N/A
STACK PARAMETERS			
Stack Height (ft) (AGL)	200	200	200
Stack Diameter (ft)	16.5	16.5	16.5
Stack Gas Temperature (°F)	171	176	183
Stack Gas Exit Velocity (ft/sec)	<u>55</u> 4	<u>54</u> 9	<u>49</u> 47
⁽¹⁾ Updated to reflect revised maximum heat input rate ⁽¹⁾ Emission estimates based on manufacturer's data (GE, 1996). ⁽²⁾ The heat input rate is based on the lower heating value of the fuel. ⁽³⁾ Sulfur dioxide emissions based on 10 grains/100 SCF total sulfur in natural gas and 95% conversion. ⁽⁴⁾ At 95°F, the minimum load at which 9 ppm can be achieved is approximately 55% rather than 50%. ⁽⁵⁾ Emission factor from (EPRI, 1994). ⁽⁶⁾ H ₂ SO ₄ emissions based on 5% of sulfur in fuel. AGL = Above ground level N/A = No emission factor available or no emissions expected.			

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**TABLE 2-4
COMBINED CYCLE UNIT 8
ESTIMATED ⁽¹⁾ PERFORMANCE ON
NUMBER 2 (0.05% S) DIESEL FUEL OIL (100% LOAD)⁽²⁾**

CONDITIONS			
Inlet Ambient Temperature (°F)	20	59	95
Ambient Relative Humidity (%)	60	60	60
Ambient Pressure (lb/in ²)	14.7	14.7	14.7
Maximum Heat Input Rate (mmBtu/hr) ⁽²⁾	<u>2,038.84</u>	<u>1,896.64</u>	<u>1,725.94</u>
Evaporative Cooler	Off	Off	On
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	<u>11140</u>	<u>10296</u>	<u>9389</u>
Oxides of Nitrogen (NO _x) (at 15% O ₂) (42 ppmvd) ⁽³⁾	<u>370347</u>	<u>343322</u>	<u>309297</u>
Sulfur Dioxide (SO ₂) ⁽⁴⁾	<u>10498</u>	<u>9892</u>	<u>8885</u>
Particulate Matter (PM ₁₀)	<u>1847</u>	<u>1847</u>	<u>1847</u>
Volatile Organic Compounds (non-methane HC)	<u>8.58</u>	<u>8.07</u>	<u>6.96</u>
Lead (Pb) ⁽⁵⁾	<u>1.1844E-01</u>	<u>1.10403E-01</u>	<u>9.62925E-02</u>
Asbestos	01	-01	-02
Beryllium (Be) ⁽⁵⁾	N/A	N/A	N/A
Mercury (Hg) ⁽⁵⁾	<u>6.73632E-04</u>	<u>6.26587E-04</u>	<u>5.47526E-04</u>
Vinyl Chloride	04	-04	-04
Total Fluorides (Fl) ⁽⁶⁾	<u>1.85474E-03</u>	<u>1.73462E-03</u>	<u>1.51445E-03</u>
Sulfuric Acid Mist (H ₂ SO ₄) ⁽⁴⁾	03	-03	-03
Reduced Sulfur Compounds	N/A	N/A	N/A
Total Reduced Sulfur	<u>2.16203</u>	<u>2.01489</u>	<u>1.76469</u>
	10	10	9
	N/A	N/A	N/A
	N/A	N/A	N/A
STACK PARAMETERS			
Stack Height (ft) (AGL)	200	200	200
Stack Diameter (ft)	16.5	16.5	16.5
Stack Gas Temperature (°F)	198	201	205
Stack Gas Exit Velocity (ft/sec)	<u>9185</u>	<u>8580</u>	<u>7875</u>
⁽²⁾ Updated to reflect revised maximum heat input rate			
⁽¹⁾ Emission estimates based on manufacturer's data (GE, 1996).			
⁽²⁾ The heat input rate is based on the lower heating value of the fuel.			
⁽³⁾ Based on FBN content of 0.015% or less. Maximum FBN content = 0.03% = an additional 12ppmvd NO _x above 42 ppmvd.			
⁽⁴⁾ Sulfur dioxide and sulfuric acid mist based on 0.05% sulfur by weight in fuel (future Number 2 fuel oil supply); 95% S conversion to SO ₂ , 5% conversion to H ₂ SO ₄ .			
⁽⁵⁾ Emission estimates from U.S. EPA (1993).			
⁽⁶⁾ Emission estimate based on City of Tallahassee oil analysis			
AGL = Above ground level			
N/A = No emission factor available or no emissions expected.			

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TABLE 2-5 COMBINED CYCLE UNIT 8 ESTIMATED ⁽¹⁾ PERFORMANCE ON NUMBER 2 (0.05% S) DIESEL FUEL OIL (75% LOAD)^(A)			
CONDITIONS			
Inlet Ambient Temperature (°F)	20	59	95
Ambient Relative Humidity (%)	60	60	60
Ambient Pressure (lb/in ²)	14.7	14.7	14.7
Maximum Heat Input Rate (mmBtu/hr) ⁽²⁾	<u>1,669.1456</u>	<u>1,561.94</u>	<u>1,365.94</u>
Evaporative Cooler	7	465.5	313.3
	Off	Off	Off
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	<u>108404</u>	<u>10397</u>	<u>9894</u>
Oxides of Nitrogen (NO _x) (at 15% O ₂) (42 ppmvd) ⁽³⁾	<u>299284</u>	<u>280263</u>	<u>244235</u>
Sulfur Dioxide (SO ₂) ⁽⁴⁾	<u>8580</u>	<u>8075</u>	<u>7067</u>
Particulate Matter (PM ₁₀)	<u>1847</u>	<u>1847</u>	<u>1847</u>
Volatile Organic Compounds (non-methane HC)	<u>9.185</u>	<u>8.58</u>	<u>7.875</u>
Lead (Pb) ⁽⁵⁾	<u>9.68909E-</u>	<u>8.58805</u>	<u>7.92762</u>
Asbestos	02	E-02	E-02
Beryllium (Be) ⁽⁵⁾	N/A	N/A	N/A
Mercury (Hg) ⁽⁵⁾	<u>5.51547E-</u>	<u>5.16484</u>	<u>4.50433</u>
Vinyl Chloride	04	E-04	E-04
Total Fluorides (Fl) ⁽⁶⁾	<u>1.52443E-</u>	<u>1.42433</u>	<u>1.25420</u>
Sulfuric Acid Mist (H ₂ SO ₄) ⁽⁴⁾	03	E-03	E-03
Reduced Sulfur Compounds	N/A	N/A	N/A
Total Reduced Sulfur	<u>1.77466</u>	<u>1.65455</u>	<u>1.45439</u>
	<u>8.58</u>	<u>8.58</u>	<u>7.37</u>
	N/A	N/A	N/A
	N/A	N/A	N/A
STACK PARAMETERS			
Stack Height (ft) (AGL)	200	200	200
Stack Diameter (ft)	16.5	16.5	16.5
Stack Gas Temperature (°F)	186	190	196
Stack Gas Exit Velocity (ft/sec)	<u>6965</u>	<u>6662</u>	<u>6159</u>
^(A) Updated to reflect revised maximum heat input rate ⁽¹⁾ Emission estimates based on manufacturer's data (GE, 1996). ⁽²⁾ The heat input rate is based on the lower heating value of the fuel. ⁽³⁾ Based on FBN content of 0.015% or less. Maximum FBN content = 0.03% = an additional 12ppmvd NO _x above 42 ppmvd. ⁽⁴⁾ Sulfur dioxide and sulfuric acid mist based on 0.05% sulfur by weight in fuel (future Number 2 fuel oil supply); 95% S conversion to SO ₂ , 5% conversion to H ₂ SO ₄ . ⁽⁵⁾ Emission estimates from U.S. EPA (1993). ⁽⁶⁾ Emission based on City of Tallahassee oil analysis AGL = Above ground level N/A = No emission factor available or no emissions expected.			

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**TABLE 2-6
COMBINED CYCLE UNIT 8
ESTIMATED ⁽¹⁾ PERFORMANCE ON
NUMBER 2 (0.05% S) DIESEL FUEL OIL (50% LOAD)^(A)**

CONDITIONS			
Inlet Ambient Temperature (°F)	20	59	95
Ambient Relative Humidity (%)	60	60	60
Ambient Pressure (lb/in ²)	14.7	14.7	14.7
Maximum Heat Input Rate (mmBtu/hr) ⁽²⁾	<u>1,299,412</u>	<u>1,224,511</u>	<u>1,068,410</u>
Evaporative Cooler	Off	Off	Off
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	<u>204192</u>	<u>201489</u>	<u>184477</u>
Oxides of Nitrogen (NO _x) (at 15% O ₂) (42ppmvd) ⁽³⁾	<u>231247</u>	<u>217204</u>	<u>189482</u>
Sulfur Dioxide (SO ₂) ⁽⁴⁾	<u>6662</u>	<u>6460</u>	<u>5553</u>
Particulate Matter (PM ₁₀)	<u>1847</u>	<u>1847</u>	<u>1847</u>
Volatile Organic Compounds	<u>1842.5</u>	<u>1742.5</u>	<u>1742.5</u>
Lead (Pb) ⁽⁵⁾	<u>7.547-08E-</u>	<u>2.046-6E</u>	<u>6.205-96</u>
Asbestos	02	-02	E-02
Beryllium (Be) ⁽⁵⁾	N/A	N/A	N/A
Mercury (Hg) ⁽⁵⁾	<u>4.294-03E-</u>	<u>3.94E-3-7</u>	<u>3.533-39</u>
Vinyl Chloride	04	9-04	E-04
Total Fluorides (Fl) ⁽⁶⁾	<u>1.181-44E-</u>	<u>1.124-05</u>	<u>9.729-35</u>
Sulfuric Acid Mist (H ₂ SO ₄) ⁽⁴⁾	03	E-03	E-04
Reduced Sulfur Compounds	N/A	N/A	N/A
Total Reduced Sulfur	<u>1.374-29</u>	<u>1.304-22</u>	<u>1.134-09</u>
	<u>7.57</u>	<u>6.46</u>	<u>6.26</u>
	N/A	N/A	N/A
	N/A	N/A	N/A
STACK PARAMETERS			
Stack Height (ft) (AGL)	200	200	200
Stack Diameter (ft)	16.5	16.5	16.5
Stack Gas Temperature (°F)	176	181	188
Stack Gas Exit Velocity (ft/sec)	<u>5350</u>	<u>5454</u>	<u>5048</u>

^(A) Updated to reflect revised maximum heat input rate

⁽¹⁾ Emission estimates based on manufacturer's data (GE, 1996).

⁽²⁾ The heat input rate is based on the lower heating value of the fuel.

⁽³⁾ Based on FBN content of 0.015% or less. Maximum FBN content = 0.03% = an additional 12ppmvd NO_x above 42 ppmvd.

⁽⁴⁾ Sulfur dioxide and sulfuric acid mist based on 0.05% sulfur by weight in fuel (future Number 2 fuel oil supply); 95% S conversion to SO₂, 5% conversion to H₂SO₄.

⁽⁵⁾ Emission estimates from U.S. EPA (1993).

⁽⁶⁾ Emission based on City of Tallahassee oil analysis

AGL = Above ground level

N/A = No emission factor available or no emissions expected.

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TABLE 2-11 MAXIMUM (WORST CASE) EMISSIONS AND NET EMISSIONS INCREASES FROM PROJECT ^(A)			
Pollutant	Annual Emissions (tons/year)	Scenario	Net Emissions Increase (tons/yr)
Carbon Monoxide (CO)	206493	9	140427
Nitrogen Oxides (NO _x)	467	7	0.0
Sulfur Dioxide (SO ₂)	80	6	0.0
Ozone (VOCs)	15.744.7	9	12.944.9
Particulate Matter (TSP)	61.659.0	4	50.948.3
Particulate Matter (PM ₁₀)	61.659.0	4	50.948.3
Total Reduced Sulfur	N/A	N/A	N/A
Reduced Sulfur Compounds	N/A	N/A	N/A
Sulfuric Acid Mist (H ₂ SO ₄)	9.28.7	2	6.15.6
Fluorides (F)	1.754.64	2	1.674.56
Vinyl Chloride	NA	N/A	N/A
Lead (Pb)	0.0970.094	2	0.090.08
Mercury (Hg)	0.0024	2	0.0004
Asbestos	NA	N/A	N/A
Beryllium (Be)	0.000550.00052	2	0.000250.00022

^(A) Updated to reflect revised maximum heat input rate

N/A - No emissions information available or no emissions expected.

TABLE 2-12 MAXIMUM (WORST CASE) EMISSIONS OF HAZARDOUS AIR POLLUTANTS (UNIT 7, UNIT 8, GT1, GT2, COOLING TOWER AND AUX BOILER) ^(A)	
Pollutant	Maximum Estimated Emissions (tons/yr)
Arsenic (As)	8.59E-03
Cadmium (Cd)	6.903.53E-03
Chromium (Cr)	7.847.36E-02
Manganese (Mn)	5.515.47E-01
Nickel (Ni)	2.004.88E-00
Cobalt (Co)	1.524.43E-02
Antimony (Sb)	3.673.45E-02
Vanadium (V)	1.32E-01
Polycyclic Organic Material (POM)	4.003.76E-02
Benzo (a) pyrene (BaP)	6.776.36E-06
Benzene	6.616.24E-03
Toluene	2.01E-02
Selenium (Se)	8.848.30E-03
Hydrochloric Acid (HCl)	1.264.18E+01
Dioxin (2,378 TCDD)	1.484.39E-08
Formaldehyde (HCOH)	2.782.64E-01

^(A) Updated to reflect revised maximum heat input rate

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TABLE 3-4 MAXIMUM ANNUAL NET CHANGE IN EMISSIONS AND PSD SIGNIFICANCE VALUES ^(A)			
Pollutant	Net Increase In Emissions ⁽¹⁾ (TPY)	PSD Significance Criterion (TPY)	PSD Review Required (Yes/No)
Carbon Monoxide (CO)	140+27	0 ⁽²⁾	Yes
Nitrogen Oxides (NO _x)	0.0	0 ⁽²⁾	No
Sulfur Dioxide (SO ₂)	0.0	0 ⁽²⁾	No
Particulate Matter (PM ₁₀)	50.948.3	15	Yes
Particulate Matter (TSP)	50.948.3	25	Yes
Volatile Organic Compounds (VOCs)	12.944.9	40	No
Lead (Pb)	-0.090.080	0.6	No
Asbestos	N/A	0.007	No
Beryllium (Be)	0.000250.00022	0.0004	No
Mercury (Hg)	0.00040	0.1	No
Vinyl Chloride	N/A	1	No
Total Fluorides (Fl)	1.74.6	3	No
Sulfuric Acid Mist (H ₂ SO ₄)	6.15.6	7	No
Total Reduced Sulfur	N/A	10	No
Reduced Sulfur Compounds	N/A	10	No

^(A) Updated to reflect revised maximum heat input rate

⁽¹⁾ Based on worst case scenarios.

⁽²⁾ Due to the proximity to the Class I area, lower criteria apply for those pollutants with a minimum projected 24-hour average impact of 1.0 mg/m³ or more in the Class I area.

NA = No emissions information available or no emissions expected.
TPY = Tons per year

Purdum Unit 8

**TABLE 4-3
CARBON MONOXIDE EMISSIONS^(A)**

Emission Basis	Emission Levels					
	100% Load			50% Load		
	ppmv	lb/hr	tons/yr	ppmv	lb/hr	tons/yr
CO - Base Case						
Natural Gas Firing	9	3129	105.2697	25	5853	45.12415
No. 2 Fuel Oil Firing	30	10296	04 20.72194 4	90	201489	9 9.57898
CO - Option 1 (90% Control)						
Natural Gas Firing	NA	3129	10.53970	NA	5.853	4.51416
No. 2 Fuel Oil Firing	NA	10296	2.07194	NA	20.1489	0.96090
Ambient Temperature (°F)	59	59	59	59	59	59
Load (%)	100	100	100	50	50	50
Natural Gas Firing (hours)	6,690.6	6,690.6	6,690.6	1,569.4	1,569.4	1,569.4
No. 2 Fuel Oil Firing (hours)	405	405	405	95	95	95
^(A) Updated to reflect revised maximum heat input rate						
Net Reductions (TPY)						
CO Option 1 - 162.6045032 Tons per Year						
NA - Not Available						

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**TABLE 6-3
PROPOSED UNIT 8 LONG-TERM EMISSIONS INVENTORY
NATURAL GAS AND FUEL OIL FIRING (59° F 100% LOAD)**

Pollutant	Natural Gas ⁽¹⁾			Fuel Oil ⁽²⁾		
	tons/year	lb/hr	grams/sec	tons/year	lb/hr	grams/sec
Sulfur Dioxide (SO ₂)	6 ⁽³⁾	1.4 ⁽³⁾	0.2 ⁽³⁾	80 ⁽⁴⁾	18.3 ⁽⁴⁾	2.3 ⁽⁴⁾
Particulate Matter (PM ₁₀)	42.939.4	9.89	1.24.4	15.744.7	3.63.4	0.50.4
Oxides of Nitrogen (NO _x)	275.9254	6358	7.97.3	297.6279.3	67.963.8	8.68
Lead (Pb)	0	0	0.00	9.548.95E-02	2.182.04E-02	2.722.58E-03

(1) Assumes 8,760 hrs of operation.

(2) Assumes 1,735 hours of operation limited by SO₂ facility-wide cap.

(3) Based on 0.32 grains/100 scf total sulfur in natural gas, annual average

(4) Based on 0.05% sulfur in fuel oil

Stack height = 60.97 m

Stack diameter = 5.0 m

Stack exit velocity = 22.99 m/s on natural gas

= 24.24 m/s on fuel oil

Stack exit temperature = 362°K on natural gas

= 367°K on fuel oil

Stack UTM Coordinates: 769.611 km East

3,339.767 km North

Purdom Unit 8

**TABLE 6-4
PROPOSED UNIT 8 DRAFT FARCS EMISSIONS INVENTORY**

Pollutant	Short-Term ⁽¹⁾		Long-Term ⁽²⁾		
	lb/hr	grams/sec	tons/year	lb/hr	grams/sec
Arsenic (As)	6.375-98E-03	8.037-54E-04	8.057-56E-03	1.841-73E-03	2.322-18E-04
Beryllium (Be)	4.294-03E-04	5.415-08E-05	5.425-09E-04	1.241-16E-04	1.571-47E-05
Cadmium (Cd)	5.455-12E-03	6.886-46E-04	6.906-48E-03	1.581-48E-03	1.991-87E-04
Chromium (Cr)	6.105-73E-02	7.707-23E-03	7.737-26E-02	1.771-66E-02	2.232-09E-03
Lead (Pb)	7.547-08E-02	9.508-92E-03	9.538-95E-02	2.172-04E-02	2.752-58E-03
Manganese (Mn)	4.424-15E-01	5.575-23E-02	5.595-25E-01	1.281-20E-01	1.611-51E-02
Mercury (Hg)	1.181-11E-03	1.491-40E-04	1.491-40E-03	3.423-21E-04	4.304-04E-05
Nickel (Ni)	1.551-46E+00	1.971-85E-01	1.971-85E+00	4.504-23E-01	5.685-33E-02
Cobalt (Co)	1.181-11E-02	1.491-40E-03	1.491-40E-02	3.423-21E-03	4.304-04E-04
Antimony (Sb)	2.852-68E-02	3.603-38E-03	3.623-40E-02	8.257-75E-03	1.04E-039-78E-04
Vanadium (V)	5.725-37E-03	7.216-77E-04	7.236-79E-03	1.651-55E-03	2.091-96E-04
Polycyclic Organic Matter (POM)	3.122-93E-02	3.933-69E-03	3.953-71E-02	9.018-46E-03	1.141-07E-03
Benzo(a)pyrene (BaP)	5.274-95E-06	6.656-24E-07	6.686-27E-06	1.521-43E-06	1.921-80E-07
Benzene	1.521-43E-03	1.931-81E-04	1.931-81E-03	4.414-14E-04	5.565-22E-05
Toluene	1.371-29E-02	1.741-63E-03	1.741-63E-02	3.973-73E-03	5.014-70E-04
Selenium (Se)	6.896-47E-03	8.688-15E-04	8.718-18E-03	1.991-87E-03	2.512-36E-04
Hydrochloric Acid (HCl)	9.829-22E+00	1.241-16E+00	1.251-17E+01	2.832-66E+00	3.583-36E-01
Hydrogen Fluoride (HF)	1.371-29E+00	1.741-63E-01	1.751-64E+00	3.983-74E-01	5.024-71E-02
Hydrogen Dioxin (378TCDD)	1.151-08E-08	1.451-36E-09	1.461-37E-08	3.323-12E-09	4.203-94E-10
Formaldehyde (HCOH)	2.822-61E-02	3.553-29E-03	5.364-96E-02	1.221-13E-02	1.541-43E-03

⁽¹⁾ Fuel oil firing at 20°F 50% load (worst case impact condition) except formaldehyde which is based on firing natural gas.

⁽²⁾ Assumes 1,735 hours of operation on fuel at 59°F 100% load, except formaldehyde, which is based on firing natural gas 8,760 hours.

Stack height = 60.97 m

Stack diameter = 5.0 m

Stack exit velocity = 15.38 m/s on fuel oil (20°F 50% load)

Stack exit temperature = 353°K on fuel oil (20°F 50% load)

Stack UTM Coordinates: 769.611 km East
3,339.767 km North

CITY OF TALLAHASSEE ELECTRIC DEPARTMENT FUTURE EMISSIONS UNIT INVENTORY SOURCE - PURDOM GENERATING STATION				
Unit No.	Emissions Unit	Emissions Unit Description	Regulatory ⁽¹⁾ ⁽²⁾ Classification	Emission Unit Status
1	CT #1	Combustion Turbine - 228 mmBtu/hr	Regulated - Permit # AO37-242825	Existing
1a	Oil Vapor Extractor	Oil Vapor Extractor	Exempted Under Rule 62-213.430(6)	Existing
1b	Fuel Oil Piping	Fuel Oil Piping	Exempted Under Rule 62-213.430(6)	Existing
1c	Lube Oil Tank	Organic Liquid Storage	Exempted Under Rule 62-213.430(6)	Existing
2	CT #2	Combustion Turbine - 228 mmBtu/hr	Regulated - Permit # AO37-242825	Existing
2a	Oil Vapor Extractor	Oil Vapor Extractor	Exempted Under Rule 62-213.430(6)	Existing
2b	Fuel Oil Piping	Fuel Oil Piping	Exempted Under Rule 62-213.430(6)	Existing
2c	Lube Oil Tank	Organic Liquid Storage	Exempted Under Rule 62-213.430(6)	Existing
5	Steam Generator No. 7	Steam Generator - 621 mmBtu/hr	Regulated - Permit # AO37-242831	Existing
5a	Fuel Oil Piping	Fuel Oil Piping	Exempted Under Rule 62-213.430(6)	Existing
5b	Hydrogen Gas Vents	Hydrogen Gas Vents	Exempted Under Rule 62-213.430(6)	Existing
5c	Deareator Tank Vents	Deareator Tank Vents	Exempted Under Rule 62-213.430(6)	Existing
5d	Oil Vapor Extractors	Oil Vapor Extractors	Exempted Under Rule 62-213.430(6)	Existing
5e	Lube Oil Tank (storage)	Organic Liquid Storage	Exempted Under Rule 62-213.430(6)	Existing
5f	Lube/Fuel Oil Drip Pans	Lube/Fuel Oil Drip Pans	Exempted Under Rule 62-213.430(6)	Existing
5g	Noncondensable Gas	Noncondensable Gas Extractor	Exempted Under Rule 62-213.430(6)	Existing
6	Emergency Generator	Diesel Engine <400 hrs/yr	Exempt per Rule 62-210.300(3)(a)20	Existing
6a	Diesel Driven Fire Pump	Diesel Engine <400 hrs/yr	Exempt per Rule 62-210.300(3)(a)20	Existing
6b	Temp. Diesel Fire Pump	Diesel Engine <400 hrs/yr	Exempt per Rule 62-210.300(3)(a)20	New
6c	Emergency Generator	800MHz Tower Emerg. Generator	Exempt per Rule 62-210.300(3)(a)20	New
6d	Heating Unit	Temp. Heating Unit for Cleaning	Exempt per Rule 62-210.300(3)(a)21	New
6e	Emergency Generator	Temp Aux Power Generator	Exempt per Rule 62-210.300(3)(a)20	New
7	Fuel Farm	Fuel Oil Tank No. 1	Exempted Under Rule 62-213.430(6)	Existing
7a	Fuel Farm	Fuel Oil Tank No.3	Exempted Under Rule 62-213.430(6)	Existing
7b	Fuel Farm	Waste Water Tank	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
7d	Fuel Farm	Waste Oil Tank	Exempted Under Rule 62-213.430(6)	Existing
8	No. 2 Fuel Oil Tank	Organic Liquid Storage	Exempted Under Rule 62-213.430(6)	Existing
8a	Diesel Tank (300 gallons)	Organic Liquid Storage	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
8b	Truck Loading/Unloading	Fuel Dispensing Operation	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
9	Gasoline Tank	Organic Liquid Storage	Exempted Under Rule 62-213.430(6)	Existing
9a	Fuel Dispensing Operation	Fuel Dispensing Operation	Exempted Under Rule 62-213.430(6)	Existing
10	Diesel Tank	Organic Liquid Storage	Exempted Under Rule 62-213.430(6)	Existing
10a	Fuel Dispensing Operation	Fuel Dispensing Operation	Exempted Under Rule 62-213.430(6)	Existing
11	Barge Unloading Station	Fuel Dispensing Operation	Exempted Under Rule 62-213.430(6)	Existing
12	Fuel Dispensing Operation	Truck Loading/Unloading Rack 1	Exempted Under Rule 62-213.430(6)	Existing
12a	Fuel Dispensing Operation	Truck Loading/Unloading Rack 2	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing

CITY OF TALLAHASSEE ELECTRIC DEPARTMENT				
FUTURE EMISSIONS UNIT INVENTORY				
SOURCE - PURDOM GENERATING STATION				
Unit No.	Emissions Unit	Emissions Unit Description	Regulatory ⁽¹⁾⁽²⁾ Classification	Emission Unit Status
13	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13a	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13b	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13c	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13d	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13e	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13f	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13g	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13h	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
13i	Solvent Cleaning	Parts Washer - Nonhalogenated	Exempted Under Rule 62-213.430(6)	Existing
14	Space Heater	Space Heater	Exempt Rule 62-210.300(3)(a)12	Existing
14a	Space Heater	Space Heater	Exempt Rule 62-210.300(3)(a)12	Existing
14b	Space Heater	Space Heater	Exempt Rule 62-210.300(3)(a)12	Existing
14c	Space Heater	Space Heater	Exempt Rule 62-210.300(3)(a)12	Existing
14d	Space Heater	Space Heater	Exempt Rule 62-210.300(3)(a)12	Existing
14e	Space Heater	Space Heater	Exempt Rule 62-210.300(3)(a)12	Existing
14f	Space Heater	Space Heater	Exempt Rule 62-210.300(3)(a)12	Existing
15	Fugitive Dust	Paved Roads	Exempted Under Rule 62-213.430(6)	Existing
15a	Fugitive Dust	Unpaved Roads	Exempted Under Rule 62-213.430(6)	Existing
15b	Fugitive Dust	Heavy Construction Activities	Unregulated	Existing
15c	Fugitive Dust	Heavy Construction Activities (Unit 8)	Unregulated	Temporary (Existing)
15d	Fugitive Dust	Aggregate Handling & Storage	Exempted Under Rule 62-213.430(6)	Existing
17	Laboratory	Laboratory Equipment	Exempt Rule 62-210.300(3)(a)15	Existing
17a	Laboratory	Chemical Usage	Exempted Under Rule 62-213.430(6)	Existing
17b	Laboratory	Vacuum Pumps	Exempt Rule 62-210.300(3)(a)9	Existing
17c	Laboratory	Laboratory Fume Hoods	Exempted Under Rule 62-213.430(6)	Existing
18	Central Vacuum System	Central Vacuum System	Exempted Under Rule 62-213.430(6)	Existing
19	Maintenance Activities	Welding	Exempt Rule 62-210.300(3)(a)16	Existing
20	Plant Operations	Lube Oil Storage Tanks	Exempted Under Rule 62-213.430(6)	Existing
20a	Plant Operations	Surface Coating Operations	Unregulated	Existing
20b	Plant Operations	Surface Coating Operations (Unit 8)	Unregulated	Temporary (Existing)
20c	Plant Operations	Propane Storage Tanks	Exempted Under Rule 62-213.430(6)	Existing
20d	Plant Operations	Venting/Flaring of Nat. Gas Oderant	Exempted Under Rule 62-213.430(6)	New
21	Auxiliary Boiler	Steam Generator - 16.74 mmBtu/hr	Regulated - Permit # 1290001-002-AC	Existing
21a	Hydrogen Gas Vents	Hydrogen Gas Vents	Exempted Under Rule 62-213.430(6)	Existing
21b	Deareator Tank Vents	Deareator Tank Vents	Exempted Under Rule 62-213.430(6)	Existing
21c	Noncondensable Gas	Noncondensable Gas Extractor	Exempted Under Rule 62-213.430(6)	Existing

CITY OF TALLAHASSEE ELECTRIC DEPARTMENT FUTURE EMISSIONS UNIT INVENTORY SOURCE - PURDOM GENERATING STATION				
Unit No.	Emissions Unit	Emissions Unit Description	Regulatory ^{(1) (2)} Classification	Emission Unit Status
22	Unit 8	Combustion Turbine	Regulated	Existing
22a	Unit 8	Oil Vapor Extractor	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22b	Unit 8	Fuel Oil Piping	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22c	Unit 8	Organic Liquid Storage	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22d	Unit 8	Heat Recovery Steam Generator	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22e	Unit 8	Fuel Oil Piping	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22f	Unit 8	Hydrogen Gas Vents	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22g	Unit 8	Deareator Tank Vents	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22h	Unit 8	Oil Vapor Extractors	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22i	Unit 8	Organic Liquid Storage	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22j	Unit 8	Lube/Fuel Oil Drip Pans	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
22k	Unit 8	Noncondensable Gas Extractor	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
23	Water Treatment	Zero Discharge Facility	Unregulated - Propose exemption under Rules 62-4.040 & 62-213.430(6)	Existing
23a	Water Treatment	Cooling Tower	Unregulated	Existing
⁽¹⁾ Note: The designation "proposed exemption under criteria in Rule 62-213.430(6)" indicates that an exemption is requested for this unit pursuant to Rule 62-213.420(3)(m), F.A.C., in accordance with the provisions of Rule 62-213.430(6), F.A.C. ⁽²⁾ Note: All trivial emissions units and activities are omitted per FDEP 3/15/96 guidance memo. In addition, all mobil sources are omitted as outside the scope of Title V stationary source permitting.				

COMPLIANCE CERTIFICATION

In accordance with the instructions for the Florida Department of Environmental Protection's Form No. 62-210.900(1), F.A.C., and Rule 62-213.420(3)(j), F.A.C., a compliance statement must be included in each application for an air pollution permit (i.e., Construction, Modification, State Operating or Title V Operating Permit). This Compliance Certification is intended to meet the requirements of the instructions and the regulation.

CERTIFICATION STATEMENT

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



Signed

11/13/01

Date

Emissions Unit Information Section 7 of 7

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): Unit 8 - Combined Cycle Combustion Turbine		
2. Emissions Unit Identification Number: [] No Corresponding ID [X] Unknown -012		
3. Emissions Unit Status Code: C	4. Acid Rain Unit? [X] Yes [] No	5. Emissions Unit Major Group SIC Code: 49
6. Emissions Unit Comment (limit to 500 characters): 		

Emissions Unit Control Equipment

A.

1. Description (limit to 200 characters): <u>Oxides of Nitrogen</u> Dry Low NOx Combustors - Natural Gas Firing
2. Control Device or Method Code: 025

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

Emissions Unit Details

1. Initial Startup Date:		
2. Long-term Reserve Shutdown Date:		
3. Package Unit: Manufacturer: General Electric Model Number: MS7001FA		
4. Generator Nameplate Rating: Nominal 160 MW		
5. Incinerator Information:		
	Dwell Temperature:	°F
	Dwell Time:	seconds
	Incinerator Afterburner Temperature:	°F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: <u>2,038.81914.1 mmBtu/hr LHV at 20°F, 60% RH, and corrected per combustor inlet temperature and heat input curves</u>		
2. Maximum Incineration Rate:	lb/hr	tons/day
3. Maximum Process or Throughput Rate:		
4. Maximum Production Rate:		
5. Operating Capacity Comment (limit to 200 characters): The total generating capacity of the unit has been set at a nominal 250 MW (GT-160 MW and ST - 90 MW). Attachment EU13-01 contains the General Electric data sheets for the proposed unit. These data sheets provide the heat input rates for various loads, <u>combustor inlet</u> ambient temperatures and fuels. The maximum heat input occurs while firing distillate fuel oil at 100 percent load. At 20 °F this corresponds to <u>2038.81914.1 mmBtu/hr</u> for Number 2 (0.05% Sulfur) diesel fuel oil and <u>1816.41682.2 mmBtu/hr</u> for natural gas. Upon completion of compliance testing, the City will provide temperature and heat input curves.		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule:		
	hours/day	days/week
	weeks/year	8,760 hours/year

Emissions Unit Information Section 7 of 7

10. Percent Water Vapor :	%
11. Maximum Dry Standard Flow Rate:	dscfm
12. Nonstack Emission Point Height:	feet
13. Emission Point UTM Coordinates: Zone: 16 East (km): 769.611 North (km): 3339.767	
14. Emission Point Comment (limit to 200 characters):	
<p><u>The purposes of this request is to revise Permit No. PSD-FL-239 and Title V Permit No. 1290001-003-AV include:</u></p> <ol style="list-style-type: none"> 1. <u>Correct the heat input rate based on the unit as-built compared to design specifications used in the original application</u> 2. <u>To appropriately correspond heat input limits to the combustor inlet temperature (as opposed to ambient temperature)</u> 3. <u>To authorize excess emissions up to 6 hour in any 24-hour period for startup, shutdown, malfunction, load change, and fuel switch.</u> 4. <u>To authorize 72 hours annually for excess emissions during DLN tuning events; these emissions would be counted toward the facility wide cap.</u> 	

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):	
Natural Gas	
2. Source Classification Code (SCC): 10100601	
3. SCC Units: mmSCF	
4. Maximum Hourly Rate: 2.019	5. Maximum Annual Rate: see field 10
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: 0.033	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 904 (LHV)	
10. Segment Comment (limit to 200 characters):	
<p>Maximum hourly usage rate is based on full load operation at an <u>combustor inletambient</u> temperature of 20 °F. Actual hourly rate will vary depending on <u>combustor inletambient</u> conditions.</p> <p>Actual Annual Rate will vary based on the requested facility-wide caps</p>	

Emissions Unit Information Section 7 of 7

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): <p style="text-align: center;">No. 2 (0.05% Sulfur) Diesel Fuel Oil</p>	
2. Source Classification Code (SCC): 10100401	
3. SCC Units: Gallons	
4. Maximum Hourly Rate: 15,44514,500	5. Maximum Annual Rate: see field 10
6. Estimated Annual Activity Factor:	
7. Maximum Percent Sulfur: 0.05	8. Maximum Percent Ash:
9. Million Btu per SCC Unit: 132,000 (LHV)	
10. Segment Comment (limit to 200 characters): <p>Maximum hourly usage rate is based on full load operation at an <u>combustor inletambient</u> temperature of 20 °F. Actual hourly rate will vary depending on <u>combustor inletambient</u> conditions.</p> <p>Actual Annual Rate will vary based on the requested facility-wide caps</p>	

Emissions Unit Information Section 7 of 7

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

Pollutant Detail Information: Pollutant 1 of 6

1. Pollutant Emitted: CO	
2. Total Percent Efficiency of Control:	%
3. Potential Emissions:	<u>204192</u> lb/hour, (See Field 9) 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/year	
6. Emission Factor: Reference:	
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 style="margin-left: 40px;">lb/hr - See Appendix A of the PSD Application.</p> <p style="margin-left: 40px;">See Field 9</p>	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): <p style="margin-left: 40px;">Actual hourly emissions will vary based on load and <u>combustor inlet</u> ambient temperature. Actual annual emissions will be limited indirectly by the facility-wide emission caps on SO₂ and NO_x.</p>	

Emissions Unit Information Section 7 of 7

Pollutant Detail Information: Pollutant 2 of 6

1. Pollutant Emitted: PM	
2. Total Percent Efficiency of Control:	%
3. Potential Emissions:	1817 lb/hour, (*See Field 9) 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/year	
6. Emission Factor: Reference:	
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 style="text-align: center;">lb/hr - See Appendix A of the PSD Application.</p>	
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): <p style="text-align: center;">Actual annual emissions will be limited indirectly by the facility-wide emission caps on SO₂ and NO_x.</p>	

Emissions Unit Information Section 7 of 7

Pollutant Detail Information: Pollutant 3 of 6

1. Pollutant Emitted: NOx	
2. Total Percent Efficiency of Control:	%
3. Potential Emissions: tons/year	<u>370347</u> lb/hour, Cap
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/year	
6. Emission Factor: Reference:	
7. Emissions Method Code: <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	
8. Calculation of Emissions (limit to 600 characters): lb/hr - See Appendix A of the PSD Application. TPY=467 TPY - Facility Wide Cap	
9. Pollutant Potential Estimated Emissions Comment (limit to 200 characters): Potential hourly emissions based on 100 percent load at an <u>combustor inlet</u> ambient temperature of 20 °F while firing fuel oil. These short term potentials do not include start-up, shut-down or malfunctions which are included within the requested annual cap. Information in Appendix A of the PSD application regarding short term NOx emission rates reflects operations at steady-state and does not include allowances for fuels containing fuel bound nitrogen levels above 0.015 percent. Predicted short-term steady-state emission levels follow <u>6-4 hour start-up periods. Actual hourly emissions will vary based on load and combustor inlet temperature.</u>	

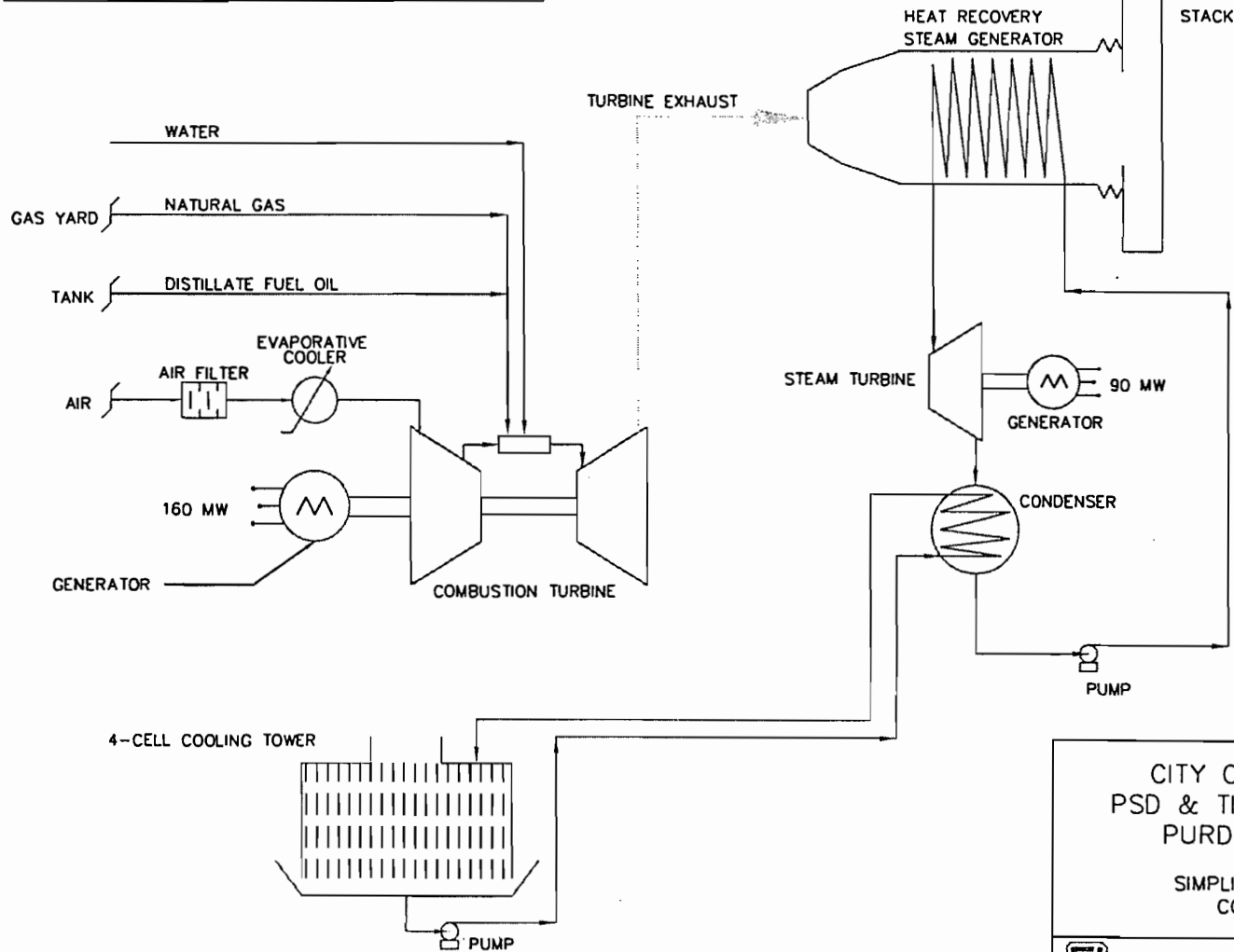
Emissions Unit Information Section 7 of 7

Pollutant Detail Information: Pollutant 3 of 6

1. Pollutant Emitted: SO2	
2. Total Percent Efficiency of Control:	%
3. Potential Emissions:	<u>10498</u> lb/hour, Cap 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/year	
6. Emission Factor: Reference:	
7. Emissions Method Code: <input type="checkbox"/> 0 <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	
8. Calculation of Emissions (limit to 600 characters): <p style="margin-left: 40px;">lb/hr - See Appendix A of the PSD application</p> <p style="margin-left: 40px;">TPY=80 TPY - Facility Wide Cap</p>	
9. Pollutant Potential Estimated Emissions Comment (limit to 200 characters): <p style="margin-left: 40px;">Potential hourly emissions are based on 100 percent load at an <u>combustor inlet</u> ambient temperature of 20 °F while firing No. 2 diesel fuel oil with a maximum sulfur content of 0.05 percent by weight, based on 95 percent conversion of the sulfur to SO₂ per the GE data sheets.</p>	

GE OPERATING DATA		
PARAMETER	NATURAL GAS	DISTILLATE FUEL OIL
HEAT INPUT (MMBTU/HR) - LHV	1816.4	2038.8
FEED RATE (MMCF/HR)	2.01	N/A
FEED RATE (KGAL/HR)	N/A	15.45
FULL LOAD AND 20 °F		

EU13 - EXHAUST PARAMETERS
EXHAUST TEMP. - 171 TO 203 °F
STACK HEIGHT - 200'
SO2 EMISSIONS - 80 TPY
NOx EMISSIONS - 467 TPY
OPACITY - 10% EXCEPT AS ALLOWED



CITY OF TALLAHASSEE, FLORIDA
 PSD & TITLE V PERMIT APPLICATIONS
 PURDOM GENERATING STATION

SIMPLIFIED PROCESS FLOW DIAGRAM
 COMBINED CYCLE - UNIT B

FOSTER WHEELER ENVIRONMENTAL CORPORATION

SCALE: N/A
 DATE: 07/22/97
 REV: 11/09/01

BY: DJG
 CKD BY: DF
 REV. BY: DJG

CAD FILE NO.
 PUNIT8.DWG

FIGURE NO. EU13-02