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

(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

Table 2
Summary of Hazardous Air Pollutants Analysis Versus Draft FARCS

	8-Hour		24-Hour		Annual	
Pollutant	**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

FLORIDA DEP LOGO

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:	11-14-01
2. Permit Number:	1290001-005-AC
3. PSD Number (if applicable):	
4. Siting Number (if applicable):	

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

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, 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.*

   Signature Date 11/13/01

* 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:

[X] 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 — 11/13/01

Signature — Date

(seal) K. 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.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: **16** East (km): **769.50** North (km): **3339.97**			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): **30/09/47** Longitude (DD/MM/SS): **84/12/10**			
3. Governmental Facility Code: **4**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **49**	6. Facility SIC(s): **4911**
7. Facility Comment (limit to 500 characters):			

Facility Contact

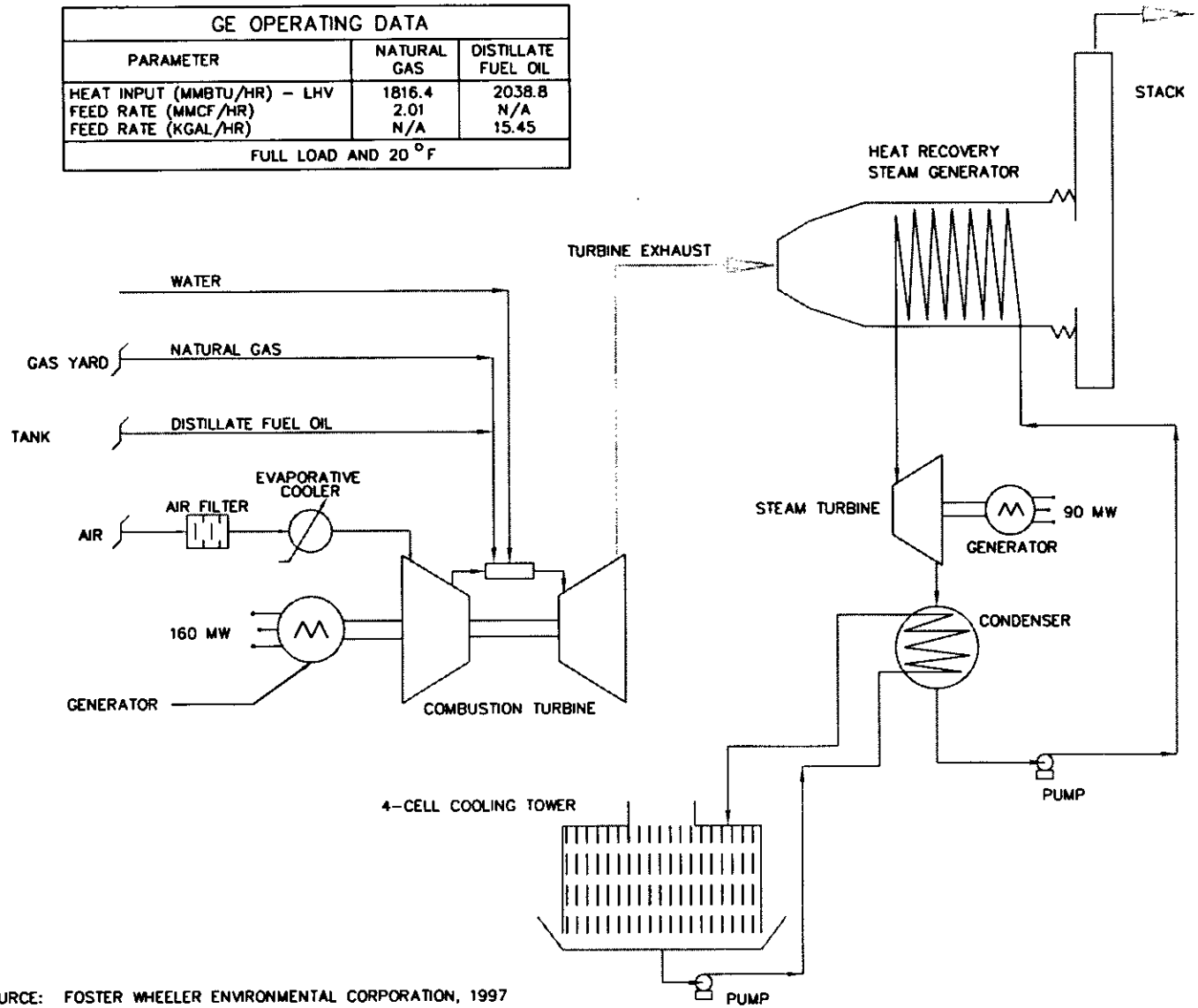
1. Name and Title of Facility Contact: **Jennette Curtis** **Environmental Resources Director**
2. Facility Contact Mailing Address Organization/Firm: **City of Tallahassee, Electric Utility** Street Address: **3rd Floor, 300 South Adams Street** City: **Tallahassee** State: **Florida** Zip Code: **32301**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

Facility Regulatory Classifications

1. Small Business Stationary Source? [ ] Yes [**X**] No [ ] Unknown
2. Title V Source? [**X**] Yes [ ] No
3. Synthetic Non-Title V Source? [ ] Yes [**X**] No
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)? [**X**] Yes [ ] No
5. Synthetic Minor Source of Pollutants Other than HAPs? [ ] Yes [**X**] No
6. Major Source of Hazardous Air Pollutants (HAPs)? [**X**] Yes [ ] No
7. Synthetic Minor Source of HAPs? [ ] Yes [**X**] No
8. One or More Emissions Units Subject to NSPS? [**X**] Yes [ ] No
9. One or More Emission Units Subject to NESHAP? [ ] Yes [**X**] No
10. Title V Source by EPA Designation? [ ] Yes [**X**] No
11. Facility Regulatory Classifications Comment (limit to 200 characters): **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.**

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

CITY OF TALLAHASSEE

SIMPLIFIED PROCESS FLOW DIAGRAM

PURDOM UNIT 8 PROJECT – ST MARKS, FLORIDA
REVISED: NOVEMBER 9, 2001

Figure 2-1

TABLE 2-1
COMBINED CYCLE UNIT 8
ESTIMATED[1] PERFORMANCE ON NATURAL GAS (100% 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]	1,816.4~~1,68~~	1,696.0~~1,5~~	1,526.4~~1~~
~~Evaporative Cooler~~	~~2.2~~	~~63.2~~	~~,467.7~~
	~~Off~~	~~Off~~	~~On~~
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	33~~31~~	31~~29~~	27~~26~~
Oxides of Nitrogen (NO_x) (at 15% O_2) (9ppmvd)	67~~62~~	63~~58~~	56~~54~~
Sulfur Dioxide (SO_2) [3]	55~~51~~	51~~47~~	46~~44~~
Particulate Matter (PM_{10})	9.8~~9~~	9.8~~9~~	9.4~~9~~
Volatile Organic Compounds (non-methane HC)	3.2~~3~~	3.0~~2.8~~	2.7~~2.6~~
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]	1.41~~1.31~~E-	1.32~~1.22~~E	1.19~~1.14~~
Vinyl Chloride	06	-06	E-06
Total Fluorides (Fl)	N/A	N/A	N/A
Sulfuric Acid Mist (H_2SO_4)[5]	N/A	N/A	N/A
Reduced Sulfur Compounds	5.5~~5.1~~	5.1~~4.7~~	4.6~~4.4~~
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)	86~~80~~	81~~75~~	76~~70~~

[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] 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_2SO_4 emissions based on 5% of sulfur in fuel.

AGL = Above ground level

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

TABLE 2-2
COMBINED CYCLE UNIT 8
ESTIMATED [1] PERFORMANCE ON NATURAL GAS (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]	1,469.3~~1,36~~	1,382.7~~1,2~~	1,251.7~~1,~~
~~Evaporative Cooler~~	~~0.7~~	~~74.4~~	~~202.1~~
	~~Off~~	~~Off~~	~~Off~~
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	30~~28~~	28~~26~~	25~~24~~
Oxides of Nitrogen (NO_x) (at 15% O_2) (9 ppmvd)	54~~50~~	51~~47~~	46~~44~~
Sulfur Dioxide (SO_2)[3]	44~~41~~	41~~38~~	37~~36~~
Particulate Matter (PM_{10})	9.8~~9~~	9.8~~9~~	9.4~~9~~
Volatile Organic Compounds (non-methane HC)	2.6~~2.4~~	2.4~~2.2~~	2.3~~2.2~~
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]	1.14~~1.06~~E-	1.08E-	9.76~~9.38~~E
Vinyl Chloride	06	06~~9.94E-~~	-07
Total Fluorides (Fl)	N/A	~~07~~	N/A
Sulfuric Acid Mist (H_2SO_4)[5]	N/A	N/A	N/A
Reduced Sulfur Compounds	4.4~~4.1~~	N/A	3.7~~3.6~~
Total Reduced Sulfur	N/A	4.1~~3.8~~	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)	68~~63~~	66~~61~~	59~~57~~

[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] 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_2SO_4 emissions based on 5% of sulfur in fuel.

AGL = Above ground level
N/A = No emission factor available or no emissions expected.

TABLE 2-3
COMBINED CYCLE UNIT 8
ESTIMATED [1] PERFORMANCE ON NATURAL GAS (50% LOAD)[A,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]	1,169.9~~1,08~~	1,107.1~~1.0~~	1,003.6~~96~~
~~Evaporative Cooler~~	~~3.5~~	~~20.4~~	~~5~~
	~~Off~~	~~Off~~	~~Off~~
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	60~~56~~	58~~53~~	52~~50~~
Oxides of Nitrogen (NO_x) (at 15% O_2) (9 ppmvd)	42~~39~~	40~~37~~	36~~35~~
Sulfur Dioxide (SO_2)[3]	25~~23~~	34~~31~~	30~~29~~
Particulate Matter (PM_{10})	9.8~~9~~	9.8~~9~~	9.4~~9~~
Volatile Organic Compounds (non-methane HC)	3.0~~2.8~~	2.8~~2.6~~	2.9~~2.8~~
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]	9.13~~8.45~~E-	8.64~~7.96~~E	7.83~~7.53~~E
Vinyl Chloride	07	-07	-07
Total Fluorides (Fl)	N/A	N/A	N/A
Sulfuric Acid Mist (H_2SO_4)[6]	N/A	N/A	N/A
Reduced Sulfur Compounds	3.6~~3.3~~	3.4~~3.1~~	3.0~~2.9~~
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)	171	176	183
Stack Gas Exit Velocity (ft/sec)	55~~54~~	54~~50~~	49~~47~~

[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] 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_2SO_4 emissions based on 5% of sulfur in fuel.

AGL = Above ground level
N/A = No emission factor available or no emissions expected.

TABLE 2-4
COMBINED CYCLE UNIT 8
ESTIMATED [1] PERFORMANCE ON
NUMBER 2 (0.05% S) DIESEL FUEL OIL (100% 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]	2,038.8~~1,91~~	1,896.6~~1,7~~	1,725.9~~1,~~
~~Evaporative Cooler~~	~~4.1~~	~~79.5~~	~~659.5~~
	~~Off~~	~~Off~~	~~On~~
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	111~~104~~	102~~96~~	93~~89~~
Oxides of Nitrogen (NO_x) (at 15% O_2) (42 ppmvd)[3]	370~~347~~	343~~322~~	309~~297~~
Sulfur Dioxide (SO_2) [4]	104~~98~~	98~~92~~	88~~85~~
Particulate Matter (PM_{10})	18~~17~~	18~~17~~	18~~17~~
Volatile Organic Compounds (non-methane HC)	8.58	8.0~~7.5~~	6.9~~6.6~~
Lead (Pb)[5]	1.18~~1.11~~E-	1.10~~1.03~~E	9.62~~9.25~~E
Asbestos	01	-01	-02
Beryllium (Be)[5]	N/A	N/A	N/A
Mercury (Hg)[5]	6.73~~6.32~~E-	6.26~~5.87~~E	5.47~~5.26~~E
Vinyl Chloride	04	-04	-04
Total Fluorides (Fl) [6]	1.85~~1.74~~E-	1.73~~1.62~~E	1.51~~1.45~~E
Sulfuric Acid Mist (H_2SO_4)[4]	03	-03	-03
Reduced Sulfur Compounds	N/A	N/A	N/A
Total Reduced Sulfur	2.16~~2.03~~	2.01~~1.89~~	1.76~~1.69~~
	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)	91~~85~~	85~~80~~	78~~75~~

[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_2SO_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.

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]	1,669.1~~1,56~~	1,561.9~~1,~~	1,365.9~~1,~~
~~Evaporative Cooler~~	~~7~~	~~465.5~~	~~313.3~~
	~~Off~~	~~Off~~	~~Off~~
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	108~~101~~	103~~97~~	98~~94~~
Oxides of Nitrogen (NO_x) (at 15% O_2) (42 ppmvd)[3]	299~~281~~	280~~263~~	244~~235~~
Sulfur Dioxide (SO_2)[4]	85~~80~~	80~~75~~	70~~67~~
Particulate Matter (PM_{10})	18~~17~~	18~~17~~	18~~17~~
Volatile Organic Compounds (non-methane HC)	9.1~~8.5~~	8.5~~8~~	7.8~~7.5~~
Lead (Pb)[5]	9.68~~9.09~~E-	8.58~~8.05~~	7.92~~7.62~~
Asbestos	02	E-02	E-02
Beryllium (Be)[5]	N/A	N/A	N/A
Mercury (Hg)[5]	5.51~~5.17~~E-	5.16~~4.84~~	4.50~~4.33~~
Vinyl Chloride	04	E-04	E-04
Total Fluorides (Fl) [6]	1.52~~1.43~~E-	1.42~~1.33~~	1.25~~1.20~~
Sulfuric Acid Mist (H_2SO_4)[4]	03	E-03	E-03
Reduced Sulfur Compounds	N/A	N/A	N/A
Total Reduced Sulfur	1.77~~1.66~~	1.65~~1.55~~	1.45~~1.39~~
	8.58	8.58	7.3~~7~~
	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)	69~~65~~	66~~62~~	61~~59~~

[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_2SO_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.

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]	1,299.4~~1,2~~	1,224.5~~1,~~	1,068.4~~10~~
~~Evaporative Cooler~~	~~19.9~~	~~148.9~~	~~27.3~~
	~~Off~~	~~Off~~	~~Off~~
EMISSIONS (lb/hr)			
Carbon Monoxide (CO)	204~~192~~	201~~189~~	184~~177~~
Oxides of Nitrogen (NO_x) (at 15% O_2) (42pmvd)[3]	231~~217~~	217~~204~~	189~~182~~
Sulfur Dioxide (SO_2)[4]	66~~62~~	64~~60~~	55~~53~~
Particulate Matter (PM_{10})	18~~17~~	18~~17~~	18~~17~~
Volatile Organic Compounds	18~~12.5~~	17~~12.5~~	17~~12.5~~
Lead (Pb)[5]	7.54~~7.08~~E-	2.04~~6.6~~E	6.20~~5.96~~
Asbestos	02	-02	E-02
Beryllium (Be)[5]	N/A	N/A	N/A
Mercury (Hg)[5]	4.29~~4.03~~E-	3.94E~~3.7~~	3.53~~3.39~~
Vinyl Chloride	04	9-04	E-04
Total Fluorides (Fl)[6]	1.18~~1.11~~E-	1.12~~1.05~~	9.72~~9.35~~
Sulfuric Acid Mist (H_2SO_4)[4]	03	E-03	E-04
Reduced Sulfur Compounds	N/A	N/A	N/A
Total Reduced Sulfur	1.37~~1.29~~	1.30~~1.22~~	1.13~~1.09~~
	7.57	6.46	6.26
	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)	53~~50~~	54~~51~~	50~~48~~

[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_2SO_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.

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)	206~~193~~	9	140~~127~~
Nitrogen Oxides (NO_x)	467	7	0.0
Sulfur Dioxide (SO_2)	80	6	0.0
Ozone (VOCs)	15.7~~14.7~~	9	12.9~~11.9~~
Particulate Matter (TSP)	61.6~~59.0~~	4	50.9~~48.3~~
Particulate Matter (PM_{10})	61.6~~59.0~~	4	50.9~~48.3~~
Total Reduced Sulfur	N/A	N/A	N/A
Reduced Sulfur Compounds	N/A	N/A	N/A
Sulfuric Acid Mist (H_2SO_4)	9.2~~8.7~~	2	6.1~~5.6~~
Fluorides (Fl)	1.75~~1.64~~	2	1.67~~1.56~~
Vinyl Chloride	NA	N/A	N/A
Lead (Pb)	0.097~~0.091~~	2	0.09~~0.08~~
Mercury (Hg)	0.0024	2	0.0004
Asbestos	NA	N/A	N/A
Beryllium (Be)	0.00055~~0.00052~~	2	0.00025~~0.00022~~

[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)	6.90~~3.53~~E-03
Chromium (Cr)	7.84~~7.36~~E-02
Manganese (Mn)	5.51~~5.17~~E-01
Nickel (Ni)	2.00~~1.88~~E-00
Cobalt (Co)	1.52~~1.43~~E-02
Antimony (Sb)	3.67~~3.45~~E-02
Vanadium (V)	1.32E-01
Polycyclic Organic Material (POM)	4.00~~3.76~~E-02
Benzo (a) pyrene (BaP)	6.77~~6.36~~E-06
Benzene	6.61~~6.21~~E-03
Toluene	2.01E-02
Selenium (Se)	8.84~~8.30~~E-03
Hydrochloric Acid (HCl)	1.26~~1.18~~E+01
Dioxin (2,378 TCDD)	1.48~~1.39~~E-08
Formaldehyde (HCOH)	2.78~~2.61~~E-01

[A] Updated to reflect revised maximum heat input rate

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~~127~~	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})	50.9~~48.3~~	15	Yes
Particulate Matter (TSP)	50.9~~48.3~~	25	Yes
Volatile Organic Compounds (VOCs)	12.9~~11.9~~	40	No
Lead (Pb)	0.09~~0.080~~	0.6	No
Asbestos	N/A	0.007	No
Beryllium (Be)	0.00025~~0.00022~~	0.0004	No
Mercury (Hg)	0.00040	0.1	No
Vinyl Chloride	N/A	1	No
Total Fluorides (Fl)	1.7~~1.6~~	3	No
Sulfuric Acid Mist (H_2SO_4)	6.1~~5.6~~	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/m^3 or more in the Class I area.

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

TABLE 4-3
CARBON MONOXIDE EMISSIONS[A]

	Emission Levels					
	100% Load			50% Load		
Emission Basis	**ppmvw**	**lb/hr**	**tons/yr**	**ppmvw**	**lb/hr**	**tons/yr**
CO - Base Case						
Natural Gas Firing	9	3129	105.2697.01	25	5853	45.1241.59
No. 2 Fuel Oil Firing	30	10296	20.7219.44	90	201189	9.578.98
CO - Option 1 (90% Control)						
Natural Gas Firing	NA	3.12.9	10.539.70	NA	5.85.3	4.514.16
No. 2 Fuel Oil Firing	NA	10.29.6	2.071.94	NA	20.118.9	0.960.90
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 - 162.60150.32 Tons per Year

NA - Not Available

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

	Natural Gas[1]			Fuel Oil[2]		
Pollutant	**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	1.21.1	15.714.7	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 SO_2 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

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 critieria 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.

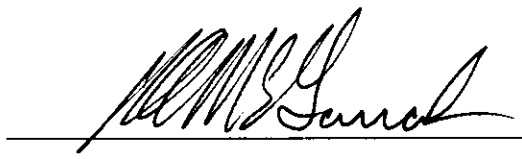
[2]Note: All trivial emissions units and activities are omitted per FDEP 3/15/96 guidance memo. In addition, all mobil sources are omitted as outside the scope of Title V stationary source permitting.

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

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): **Oxides of Nitrogen** **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: Dwell Time: Incinerator Afterburner Temperature:	 °F seconds °F

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate: **2,038.8~~1914.1~~** mmBtu/hr **LHV at 20°F, 60% RH, and corrected per combustor inlet temperature and heat input curves**		
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, combustor inlet~~ambient~~ temperatures and fuels. The maximum heat input occurs while firing distillate fuel oil at 100 percent load. At 20 °F this corresponds to 2038.8~~1914.1~~ mmBtu/hr for Number 2 (0.05% Sulfur) diesel fuel oil and 1816.4~~1682.2~~ mmBtu/hr 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

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): **The purposes of this request is to revise Permit No. PSD-FL-239 and Title V Permit No. 1290001-003-AV include:** 1. **Correct the heat input rate based on the unit as-built compared to design specifications used in the original application** 2. **To appropriately correspond heat input limits to the combustor inlet temperature (as opposed to ambient temperature)** 3. **To authorize excess emissions up to 6 hour in any 24-hour period for startup, shutdown, malfunction, load change, and fuel switch.** 4. **To authorize 72 hours annually for excess emissions during DLN tuning events; these emissions would be counted toward the facility wide cap.**	

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: **2.0~~1.9~~**	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): **Maximum hourly usage rate is based on full load operation at ~~an~~ combustor inlet~~ambient~~ temperature of 20 °F. Actual hourly rate will vary depending on combustor inlet~~ambient~~ conditions.** **Actual Annual Rate will vary based on the requested facility-wide caps**	

Segment Description and Rate: Segment 2 of 2

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) (limit to 500 characters): **No. 2 (0.05% Sulfur) Diesel Fuel Oil**	
2. Source Classification Code (SCC): **10100401**	
3. SCC Units: **Gallons**	
4. Maximum Hourly Rate: **15,445~~14,500~~**	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): **Maximum hourly usage rate is based on full load operation at ~~an~~ combustor inlet~~ambient~~ temperature of 20 °F. Actual hourly rate will vary depending on combustor inlet~~ambient~~ conditions.** **Actual Annual Rate will vary based on the requested facility-wide caps**	

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: **204~~192~~** lb/hour, **(See Field 9)** tons/year
4. Synthetically Limited? [**X**] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year
6. Emission Factor: Reference:
7. Emissions Method Code: [**X**] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **lb/hr - See Appendix A of the PSD Application.** **See Field 9**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Actual hourly emissions will vary based on load and combustor inlet~~ambient~~ temperature. Actual annual emissions will be limited indirectly by the facility-wide emission caps on SO_2 and NO_x.**

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: **18~~17~~** lb/hour, (***See Field 9**) tons/year
4. Synthetically Limited? [**X**] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year
6. Emission Factor: Reference:
7. Emissions Method Code: [**X**] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **lb/hr - See Appendix A of the PSD Application.**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Actual annual emissions will be limited indirectly by the facility-wide emission caps on SO_2 and NO_x.**

Emissions Unit Information Section 7 of 7

Pollutant Detail Information: Pollutant 3 of 6

1. Pollutant Emitted: **PM10**
2. Total Percent Efficiency of Control: %
3. Potential Emissions: **1817** lb/hour, (***See Field 9**) tons/year
4. Synthetically Limited? [**X**] Yes [ ] No
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3 _____ to _____ tons/year
6. Emission Factor: Reference:
7. Emissions Method Code: [**X**] 0 [ ] 1 [ ] 2 [ ] 3 [ ] 4 [ ] 5
8. Calculation of Emissions (limit to 600 characters): **lb/hr - See Appendix A of the PSD Application.**
9. Pollutant Potential/Estimated Emissions Comment (limit to 200 characters): **Actual annual emissions will be limited indirectly by facility-wide emission caps on SO_2 and NO_x.**

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: **370~~347~~** lb/hour, **Cap** tons/year

4. Synthetically Limited?
   [**X**] Yes [ ] No

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

6. Emission Factor:
   Reference:

7. Emissions Method Code:
   [] 0 [ ] 1 [**X**] 2 [ ] 3 [ ] 4 [ ] 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 a~~n~~ combustor inlet~~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 6~~2~~-4 hour start-up periods. Actual hourly emissions will vary based on load and combustor inlet temperature.

Allowable Emissions (Pollutant identified on front of page)

A.

1. Basis for Allowable Emissions Code: **Rule**
2. Future Effective Date of Allowable Emissions: **Upon Completion of Compliance Testing**
3. Requested Allowable Emissions and Units: **NSPS Emission Limits**
4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters): **EPA Reference Method 20**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters): **This unit is subject to 40 CFR Part 60, Subpart GG. Maximum short-term rates, excluding start-up, shutdown and malfunction must meet the limits of 40 CFR 60.332(a)(1), and (3). Actual annual emissions are limited by the proposed facility-wide caps on NO_x and SO_2.**

B.

1. Basis for Allowable Emissions Code: **ESCPSD**
2. Future Effective Date of Allowable Emissions: **Upon completion of compliance testing**
3. Requested Allowable Emissions and Units: **467 TPY**
4. Equivalent Allowable Emissions:
5. Method of Compliance (limit to 60 characters): **CEMS Data**
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) (limit to 200 characters):

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:	**10498** lb/hour, **Cap** tons/year
4. Synthetically Limited? [**X**] Yes [ ] No	
5. Range of Estimated Fugitive/Other Emissions: [ ] 1 [ ] 2 [ ] 3	_____ to _____ tons/year
6. Emission Factor: Reference:	
7. Emissions Method Code: [] 0 [ ] 1 [**X**] 2 [ ] 3 [ ] 4 [ ] 5	
8. Calculation of Emissions (limit to 600 characters): **lb/hr - See Appendix A of the PSD application** **TPY=80 TPY - Facility Wide Cap**	
9. Pollutant Potential Estimated Emissions Comment (limit to 200 characters): **Potential hourly emissions are based on 100 percent load at ~~an~~ combustor inlet~~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 SO_2 per the GE data sheets.**	

VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Visible Emissions Limitation: Visible Emissions Limitation **1** of **1**

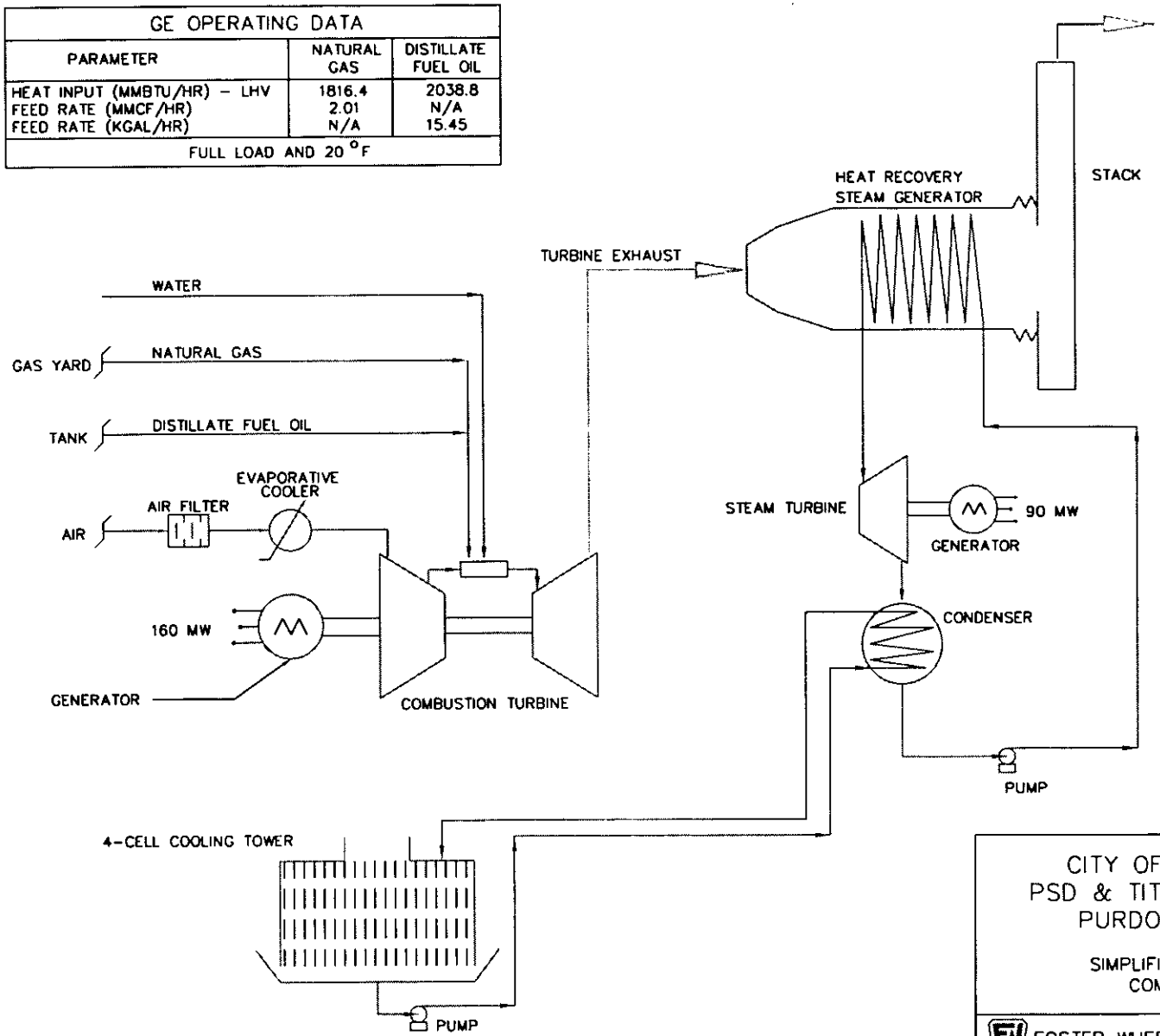
1. Visible Emissions Subtype: **VE20**
2. Basis for Allowable Opacity: [**X**] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: **10~~20~~** % Exceptional Conditions: **100 %** Maximum Period of Excess Opacity Allowed: **2 hours/24 hours**
4. Method of Compliance: **EPA Reference Method 9**
5. Visible Emissions Comment (limit to 200 characters): **Excess emissions allowed per Rule 62-210.700(1), F.A.C.**

Visible Emissions Limitation: Visible Emissions Limitation _ of _

1. Visible Emissions Subtype:
2. Basis for Allowable Opacity: [ ] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: Exceptional Conditions Maximum Period of Excess Opacity Allowed: *
4. Method of Compliance

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 8

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

SOURCE: FOSTER WHEELER ENVIRONMENTAL CORPORATION, 1997