

DEERHAVEN GENERATION STATION

UNIT 2 LOW-NO_x BURNER PROJECT

APPLICATION FOR AIR CONSTRUCTION PERMIT

Prepared for:



Prepared by:



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JAN 13 2011

BUREAU OF
AIR REGULATION

ECT No. 110033-0100

January 2011



January 12, 2011

BY OVERNIGHT DELIVERY

Mr. Jeff Koerner, P.E.
Professional Engineer Administrator
Florida Department of Environmental Protection
Division of Air Resource Management
111 South Magnolia Drive, Suite 23
Tallahassee, Florida 32301

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JAN 13 2011

BUREAU OF
AIR REGULATION

Re: Gainesville Regional Utilities
Deerhaven Generating Station (DGS)
Unit 2 Construction Permit Application
Low NO_x Burners (LNB)

File 001000e - 014-AC

Dear Mr. Koerner:

The purpose of this letter is to transmit to the Department a Construction Permit Application for installation of LNB on Unit 2 at the DGS as discussed during our phone conversation of January 4, 2011. Therefore, please find attached three copies of the permit application package and as requested one copy is being sent to Mr. Chris Kirts, P.E., at the Northeast District Office in Jacksonville. Our current plan is to install these new burners during the Spring 2011 outage the starts in late March.

GRU greatly appreciates the Department's assistance with the processing of this application. If you have any questions, please contact me by phone at (352) 393-1283, by e-mail at klemansrw@gru.com or at the address at the bottom of this letter.

Sincerely,

Robert W. Klemans, P.E.
Supervising Utility Engineer

RWK

cc (w/attach.): C. Kirts (FDEP – Jax) E. Regan (email)
J. Stanton (email) R. Casserleigh (email)
M. Jones (email) C. Brew (email)

file: DHNSR A 4.2 – Air Correspondence

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1.0 INTRODUCTION

The City of Gainesville, Gainesville Regional Utilities (GRU), operates a nominal 251-megawatt (MW) coal-fired steam electrical generating unit (EGU) at its Deerhaven Generating Station (DGS) located in Gainesville, Alachua County, Florida. Operation of DGS Unit 2 is currently authorized by Florida Department of Environmental Protection (FDEP) Title V Final Permit No. 0010006-010-AV, which was issued with an effective date of January 1, 2010, and an expiration date of December 31, 2014.

In 2009, GRU installed the following air emission control systems in response to the Clean Air Interstate Rule (CAIR):

- Selective catalytic reduction (SCR) system to reduce nitrogen oxide (NO_x) emissions.
- A circulating dry scrubber (CDS) to reduce sulfur dioxide (SO₂) emissions.
- Baghouse (fabric filter) to reduce particulate matter (PM) emissions. The baghouse is an integral part of the CDS.
- Ancillary support equipment including new material (urea, lime, and CDS byproduct) handling and storage.

GRU plans to replace the existing original Unit 2 coal burners with a state-of-the-art low-NO_x burner (LNB) system. The Unit 2 LNB system will reduce the formation of NO_x and also provide improved control of the coal combustion process. The primary purpose of the LNB project is to reduce the cost of operating the recently installed NO_x SCR control system by reducing the SCR inlet NO_x loading rate, which will allow for a reduction in urea reagent consumption. There will be no changes in operation of the Unit 2 air emission control equipment other than a reduction in urea consumption; i.e., the controlled emission rates of NO_x, SO₂, PM, and sulfuric acid (H₂SO₄) mist will remain at approximately their current levels. Based on extensive modeling of the LNB combustion process, no significant changes in carbon monoxide (CO) are expected, and therefore no significant changes in volatile organic compounds (VOCs) emission rates are anticipated since the formation mechanisms for these two pollutants are similar. Maximum Unit 2 heat input and coal combustion rates will also remain unchanged. GRU is not requesting

any changes in the current allowable emission rates specified for Unit 2 in Title V Final Permit No. 0010006-010-AV or in any active air construction permit.

This air construction permit application constitutes GRU's request for FDEP approval to install the DGS Unit 2 LNB system. GRU plans to commence installation of the Unit 2 LNB system in March 2011 and complete the installation in approximately 4 weeks. To attain the project schedule, expeditious processing of this air construction permit application will be appreciated.

In the remainder of this air construction permit application, the regulatory status of Unit 2 is described in Section 2.0. Section 3.0 provides a detailed description of the proposed Unit 2 LNB system. Section 4.0 presents a discussion of New Source Review (NSR) applicability for the LNB project. The Appendix provides FDEP's Application for Air Permit—Long Form (FDEP Form No. 62-210.900[1] Effective March 11, 2010).

2.0 REGULATORY STATUS OF UNIT 2

Key air quality related regulatory requirements applicable to DGS Unit 2 are briefly described in the following subsections.

2.1 AIR PERMITS

DGS Unit 2 was initially constructed and operated under the authority of Florida Electrical Power Plant Siting Act (PPSA) Certification No. PA 74-04 dated May 16, 1978. Initial Title V Air Operation Permit No. 0010006-01-AV, issued with an effective date of January 1, 2000, and an expiration date of December 31, 2004, authorized continued operation of the DGS, including Unit 2. This air operation permit was subsequently revised in June 2002, and renewed in 2005 and again in 2010. The current DGS Title V Air Operation Permit, Permit No. 0010006-010-AV, was issued with an effective date of January 1, 2010, and an expiration date of December 31, 2014.

FDEP Air Construction Permit No. 0010006-005-AC authorizing installation of the Unit 2 air quality control system project was issued on August 13, 2007. This permit was subsequently revised on March 3, 2009, by Air Permit No. 0010006-009-AC to authorize replacement of the existing Unit 2 superheater. Air Permit No. 0010006-009-AC expires on September 30, 2011.

On July 9, 2010, FDEP issued Construction Permit No. 0010006-012-AC, which established annual NO_x and SO₂ emission caps for Unit 2. These emission caps become effective beginning with the calendar year that the Gainesville Renewable Energy Center (GREC) establishes commercial operation.

2.2 NEW SOURCE REVIEW

DGS Unit 2 commenced initial operation after December 27, 1977, and therefore consumes increment under the Prevention of Significant Deterioration (PSD) NSR regulatory program.

2.3 NEW SOURCE PERFORMANCE STANDARDS

DGS Unit 2 is subject to NSPS Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971. As required by NSPS Subpart D, the unit is equipped with continuous emissions monitoring systems (CEMS) for measuring NO_x and opacity.

2.4 ACID RAIN PROGRAM/CLEAN AIR INTERSTATE RULE /CLEAN AIR VISIBILITY RULE

DGS Unit 2 is regulated by the Acid Rain Program (ARP) under Phase I (NO_x Early Election) and Phase II (NO_x Compliance Plan). As required by the ARP, DGS Unit 2 is equipped with CEMSs for measuring SO₂, NO_x, carbon dioxide (CO₂), and opacity. Other Unit 2 parameters monitored under the ARP program include operating hours and heat input.

In addition to the above requirements, DGS Unit 2 is subject to the CAIR and will be subject to the future Transport Rule.

DGS Unit 2 is not subject to the requirements of the Regional Haze Rule (a/k/a the Clean Air Visibility Rule [CAVR]).

3.0 DESCRIPTION OF LOW-NO_x BURNER SYSTEM

The Unit 2 LNB system, supplied by Siemens Energy, Inc., consists of LNBs, enlarged auxiliary air ports, and a modified overfire air system. There are adjustment controls on each of these components to allow tuning of the entire combustion system. Major components of the Unit 2 LNB system are described in the following paragraphs.

3.1 OPTI-FLOW™ FUEL INJECTORS

The site contains 18 Opti-Flow™ low-NO_x fuel injector assemblies, each consisting of the following:

- Six segmented coal nozzles, cast stainless steel, with integral stabilizers and axial secondary air vanes. Axial vanes inside the nozzle will be used to maintain uniform coal distribution around the circumference of the nozzle as it is tilted.
- A coal elbow, to be installed. Coal distribution devices will be installed inside the elbow.
- A circular fuel barrel attached to the new coal elbow.
- A fixed swirler located around the nozzle that provides flame stability with the secondary air in the coal compartment with manual inner air zone damper.

3.2 SECONDARY AIR NOZZLES

Two new secondary air nozzles per burner assembly will be provided. These will be integral and linked with the tiltable coal nozzles. The tiltable secondary air nozzles will supply combustion air. The secondary air nozzle system will include a windbox closure plate and burner support system. All nozzles will be made of cast stainless steel and/or 309 stainless steel plate. The system will include new tilt linkage and manual operators.

3.3 WINDBOX COMPARTMENT MODIFICATIONS

The following modifications to the existing windbox compartments will be supplied:

- Individual burner windbox division plates to separate/redirect the secondary air flow between fuel nozzle and air buckets.

- Channels for supporting the tilting burner nozzle assembly.
- Secondary air flow correcting devices (i.e. turning vanes, perforated plates, etc.), for improving air distribution to individual burner windboxes; may be included based on secondary air flow computational fluid dynamics (CFD) model results.

3.4 IGNITERS

The existing gas/oil-fired igniters will be reused in a side-fire/under-fire arrangement with the tiltable burners. Minor modifications to this equipment will be required due to their new locations.

3.5 BURNER FURNACE WALL PANELS

Eighteen burner panels will be installed.

3.6 OVER-FIRE AIR MODIFICATIONS

The following equipment will be provided for each over-fire air port:

- Existing over-fire air ports will be modified to provide air velocity and flow dictated by the CFD model.
- New pneumatic/electric on/off drives will be supplied for the existing over-fire air 2/3 damper.
- Differential pressure flow sensor will be installed.

3.7 AUXILIARY AIR PORTS MODIFICATIONS

New secondary air ducts for enlarged auxiliary air ports with integrated dampers and differential pressure flow sensor with a local gauge will be provided for all four ports. New bent tube panels will also be supplied to enlarge the auxiliary air opening.

3.8 COAL PIPING

Coal piping modifications will be supplied to connect the new burners to the existing coal pipes.

4.0 NEW SOURCE REVIEW APPLICABILITY

The existing DGS is located in an attainment area and is classified as a *major* facility. A modification to an existing major facility located in an attainment area that has a net emissions increase equal to or exceeding the significant emission rates listed in Rule 62-210.200(277), Florida Administrative Code (F.A.C.), will be subject to PSD NSR.

For changes to existing emission units, such as the DGS Unit 2 LNB project, the determination of a net emission increase is based on a comparison of actual-to-projected actual emission rates. A significant emissions increase of a PSD pollutant will occur if the difference between the *baseline* actual emissions and *projected* actual emissions equals or exceeds the significant emissions rate for that pollutant. As defined by Rule 62-210.200(36), F.A.C., baseline actual emissions for an existing electric utility steam-generating unit means the average rate, in tons per year (tpy), at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 5-year period immediately preceding the date a complete permit application is received by FDEP. Baseline actual emissions include fugitive emissions, to the extent quantifiable, as well as emissions associated with startups and shutdowns.

Projected actual emissions, as defined by Rule 62-210.200(247), F.A.C., means the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a PSD pollutant in any one of the 5 years following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that PSD pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source. Emissions that the unit could have accommodated during the 24-month baseline period and that are unrelated to the modification are excluded. As noted previously in Section 3.1, there will be no increase in maximum heat input to the boiler. Since DGS Unit 2 is a base load unit, there will also be no change in Unit 2 utilization (i.e., capacity factor) due to the LNB project.

Accordingly, the applicable period for determining projected actual emissions for the DGS Unit 2 LNB project is the 5 years following installation of the LNB system.

As previously discussed in the Section 1.0, Introduction, no significant change in actual CO emissions is expected due to the LNB project. Since the formation of VOC and CO are both related to the same combustion parameters (i.e., time, temperature, and turbulence), no significant change in VOC emissions is expected. There will also be no changes in operation of the Unit 2 air emission control equipment other than a reduction in urea consumption; i.e., the controlled emission rates of NO_x, SO₂, PM, and H₂SO₄ mist will remain at approximately their current levels. Accordingly, the evaluation of NSR applicability for the Unit 2 LNB project focused on potential changes in CO and NO_x emissions.

Discussions of baseline and projected actual emissions are provided in the following subsections.

4.1 BASELINE ACTUAL EMISSIONS

As an ARP-affected emission unit, DGS Unit 2 is equipped with CEMS for measuring SO₂, NO_x, CO₂, and opacity, as well as heat input and operating hours. The ARP CEMS data was used to develop baseline actual emissions for NO_x.

AP-42 emission factors have been used for the purpose of developing estimates of actual annual CO emission rates for the Unit 2 Annual Operating Reports. Unit 2 is also equipped with a process CO CEMS with data available for the March 2005 through August 2008 timeframe. The process CO CEMS baseline emission rate of 0.013 pound per million British thermal units (lb/MMBtu) is somewhat lower than the 2005 to 2009 average rate of 0.022 lb/MMBtu based on application of the AP-42 emission factors. Conservatively, the process CO CEMS was used to develop baseline actual emissions for the Unit 2 LNB project PSD netting analysis.

Table 4-1 provides a summary of the baseline CO and NO_x emission rates. Table 4-2 presents details of the Unit 2 process CO CEMS data.

Table 4-1. Unit 2 CO and NO_x CEMS Monthly Data—Baseline Actual Emissions

Year	Month	Heat Input* (MMBtu)	CO†				NO _x *				
			Monthly Total (tons)	Monthly Average (lb/MMBtu)	Rolling 24-Month Averages		Monthly Total (tons)	Monthly Average (lb/MMBtu)	Rolling 24-Month Averages		
					tpy	lb/MMBtu			tpy	lb/MMBtu	
2005	March	1,342,894	3.0	0.0045							
	April	1,260,018	1.9	0.0029							
	May	1,290,897	4.3	0.0067							
	June	1,271,370	3.6	0.0057							
	July	1,444,141	8.0	0.0110							
	August	1,472,508	6.1	0.0082							
	September	1,473,486	3.7	0.0051							
	October	1,161,461	9.8	0.0168							
	November	1,327,656	30.9	0.0465							
	December	1,273,487	16.2	0.0254							
2006	January	1,145,398	4.0	0.0069		273.1	0.477				
	February	1,391,334	5.6	0.0081		321.0	0.461				
	March	1,174,234	8.0	0.0136		274.2	0.467				
	April	54,033	0.5	0.0185		10.1	0.375				
	May	1,322,591	3.2	0.0048		327.9	0.496				
	June	1,108,191	4.7	0.0085		288.9	0.521				
	July	1,689,774	3.8	0.0045		438.9	0.519				
	August	1,762,629	4.6	0.0052		435.9	0.495				
	September	1,550,581	4.9	0.0063		364.8	0.470				
	October	1,602,552	4.5	0.0057		372.8	0.465				
	November	1,466,645	3.4	0.0047		357.1	0.487				
	December	1,442,391	4.0	0.0055		352.7	0.489				
2007	January	1,479,064	4.9	0.0067		372.5	0.504				
	February	1,351,496	4.5	0.0067	74.0	0.0099	337.2	0.499			
	March	1,073,973	4.8	0.0089	74.9	0.0101	257.0	0.479			
	April	429,474	9.7	0.0451	78.8	0.0119	89.7	0.418			
	May	1,304,678	9.8	0.0150	81.6	0.0122	304.1	0.466			
	June	1,449,022	16.8	0.0231	88.1	0.0130	338.0	0.467			
	July	1,360,491	7.5	0.0110	87.9	0.0130	322.4	0.474			
	August	1,701,740	17.6	0.0207	93.7	0.0135	405.4	0.476			
	September	1,133,758	12.3	0.0217	97.9	0.0142	257.4	0.454			
	October	1,196,316	7.9	0.0133	97.0	0.0140	268.6	0.449			
	November	1,506,993	7.2	0.0096	85.2	0.0125	359.9	0.478			
	December	1,351,408	6.9	0.0102	80.6	0.0118	312.5	0.462	3,721.2	0.473	
2008	January	1,688,602	12.6	0.0149	84.9	0.0122	396.9	0.470	3,783.1	0.473	
	February	1,513,958	7.0	0.0093	85.6	0.0122	353.3	0.467	3,799.2	0.473	
	March	371,872	6.0	0.0321	84.6	0.0130	80.5	0.433	3,702.3	0.471	
	April	395,794	2.5	0.0128	85.6	0.0128	91.3	0.461	3,742.9	0.475	
	May	1,606,351	10.6	0.0132	89.3	0.0131	377.0	0.469	3,767.5	0.474	
	June	1,260,688	6.3	0.0100	90.1	0.0132	290.0	0.460	3,768.0	0.471	
	July	1,451,458	6.3	0.0087	91.4	0.0134	339.4	0.468	3,718.3	0.469	
	August	1,505,776	21.7	0.0289	100.0	0.0143	341.0	0.453	3,670.8	0.467	
	September	1,357,023					304.3	0.448	3,640.6	0.467	
	October	1,301,077					295.8	0.455	3,602.1	0.466	
	November	1,105,498					240.3	0.435	3,543.7	0.464	
	December	1,135,462					253.0	0.446	3,493.8	0.462	
2009	January	1,304,526					298.9	0.458	3,457.0	0.460	
	February	1,277,787					305.9	0.479	3,441.3	0.459	
	March	557,014					132.4	0.476	3,379.0	0.459	
	April	0					0.0	N/A	3,334.2	0.461	
	May	1,321,723					135.4	0.205	3,249.8	0.450	
	June	1,482,076					61.3	0.083	3,111.5	0.433	
	July	1,534,566					84.1	0.110	2,992.3	0.417	
	August	1,572,117					78.7	0.100	2,829.0	0.401	
	September	1,376,839					75.4	0.110	2,738.0	0.386	
	October	1,494,965					47.9	0.064	2,627.6	0.369	
	November	1,239,240					33.8	0.055	2,464.5	0.351	
	December	1,416,099					47.6	0.067	2,332.0	0.333	
2010	January	1,322,388					52.5	0.079	2,159.8	0.316	
	February	968,884					35.7	0.074	2,001.0	0.299	
	March	961,954					39.6	0.082	1,980.6	0.284	
	April	143,240					11.7	0.163	1,940.8	0.271	
	May	1,305,520					48.8	0.075	1,776.7	0.254	
	June	1,634,371					42.5	0.052	1,652.9	0.236	
	July	1,667,508					46.6	0.056	1,506.5	0.218	
	August	1,655,651					50.1	0.061	1,361.1	0.201	
	September	1,472,431					42.0	0.057	1,229.9	0.184	
			Maximums			100.0	0.0143			3,799.2	0.475

*EPA Clean Air Market Web site.

†GRU CO Process CEMS.

Sources: EPA Clean Air Markets Website, 2011. GRU, 2011. ECT, 2011.

Table 4-2. Unit 2 CO Process CEMS Monthly Data—Baseline Actual Emissions

Month Year	Monthly Average Data				Calculated Monthly CO Emission Rates		
	CO*	Flow Rate*	Heat Input†	Operating Time†	lb	tons	lb/MMBtu
	(ppmvw)	(wscf/hr)	(MMBtu)	(hours)			
March 2005	4.30	25,761,531	1,342,894	743.50	5,987.4	2.99	0.0045
April 2005	2.84	24,995,510	1,260,018	720.00	3,715.6	1.86	0.0029
May 2005	6.48	24,666,722	1,290,897	742.25	8,624.8	4.31	0.0067
June 2005	5.55	27,133,100	1,271,370	661.50	7,241.6	3.62	0.0057
July 2005	11.08	26,533,545	1,444,141	744.00	15,900.9	7.95	0.0110
August 2005	8.14	27,586,961	1,472,508	744.00	12,145.5	6.07	0.0082
September 2005	5.27	27,109,689	1,473,486	720.00	7,477.9	3.74	0.0051
October 2005	16.05	26,078,289	1,161,461	642.25	19,542.2	9.77	0.0168
November 2005	46.46	25,391,104	1,327,656	720.00	61,745.8	30.87	0.0465
December 2005	25.59	25,746,617	1,273,487	675.50	32,354.1	16.18	0.0254
January 2006	6.98	25,585,936	1,145,398	610.00	7,919.6	3.96	0.0069
February 2006	8.56	26,988,488	1,391,334	672.00	11,285.9	5.64	0.0081
March 2006	14.24	26,711,377	1,174,234	576.25	15,934.2	7.97	0.0136
April 2006	10.31	20,299,932	54,033	65.75	1,000.4	0.50	0.0185
May 2006	5.34	26,641,421	1,322,591	616.00	6,370.8	3.19	0.0048
June 2006	8.51	26,420,866	1,108,191	575.00	9,398.5	4.70	0.0085
July 2006	4.66	30,038,424	1,689,774	744.00	7,570.9	3.79	0.0045
August 2006	5.66	29,880,908	1,762,629	744.00	9,147.4	4.57	0.0052
September 2006	6.73	27,849,226	1,550,581	720.00	9,810.1	4.91	0.0063
October 2006	5.97	28,159,302	1,602,552	744.00	9,092.5	4.55	0.0057
November 2006	4.69	27,887,652	1,466,645	720.00	6,845.9	3.42	0.0047
December 2006	5.43	27,249,101	1,442,391	744.00	8,002.7	4.00	0.0055
January 2007	6.43	28,298,706	1,479,064	744.00	9,841.6	4.92	0.0067
February 2007	6.53	28,471,273	1,351,496	672.00	9,082.5	4.54	0.0067
March 2007	8.65	27,463,416	1,073,973	553.00	9,550.1	4.78	0.0089
April 2007	48.58	23,284,231	429,474	235.75	19,385.9	9.69	0.0451
May 2007	16.99	26,381,430	1,304,678	601.00	19,583.0	9.79	0.0150
June 2007	27.18	26,388,205	1,449,022	643.25	33,539.2	16.77	0.0231
July 2007	12.77	27,041,948	1,360,491	594.00	14,911.8	7.46	0.0110
August 2007	23.89	29,216,160	1,701,740	694.25	35,226.5	17.61	0.0207
September 2007	25.86	25,913,822	1,133,758	504.50	24,577.4	12.29	0.0217
October 2007	13.92	24,115,277	1,196,316	650.75	15,880.3	7.94	0.0133
November 2007	10.16	28,044,468	1,506,993	700.00	14,499.5	7.25	0.0096
December 2007	10.79	25,631,591	1,351,408	688.50	13,842.5	6.92	0.0102
January 2008	16.29	28,540,409	1,688,602	744.00	25,146.0	12.57	0.0149
February 2008	9.65	28,774,301	1,513,958	696.00	14,049.3	7.02	0.0093
March 2008	30.19	24,496,771	371,872	222.00	11,935.5	5.97	0.0321
April 2008	11.75	24,438,709	395,794	242.00	5,051.8	2.53	0.0128
May 2008	13.71	28,577,081	1,606,351	744.00	21,190.6	10.60	0.0132
June 2008	10.00	26,394,165	1,260,688	660.00	12,663.9	6.33	0.0100
July 2008	8.96	26,586,534	1,451,458	729.00	12,624.4	6.31	0.0087
August 2008	30.02	27,028,257	1,505,776	737.25	43,486.8	21.74	0.0289
					Average	7.66	0.0130
					Maximum	30.87	0.0465
					Minimum	0.50	0.0029

*Unit 2 Process CO CEMS.

†EPA Clean Air Markets Web site.

Sources: EPA Clean Air Markets Website, 2011. GRU, 2011. ECT, 2011.

4.2 PROJECTED ACTUAL EMISSIONS

As noted previously, there will be no change in Unit 2 utilization due to the LNB project. Projected Unit 2 actual annual emissions during the 5 year period following installation of the LNB system for CO and NO_x were estimated using projected emission rates of 0.0143 lb/MMBtu (for CO) and 0.10 lb/MMBtu (for NO_x), and expected future Unit 2 heat input rates. The projected actual CO emission rate is based on the process CO CEMS data (see Table 4-1). The projected actual NO_x emission rate reflects GRU's estimate based on CAIR and future Transport Rule requirements.

Table 4-3 provides a summary of projected actual emission rates, baseline actual emission rates, and the net change in emissions for CO and NO_x. As shown in Table 4-3, the net increases in CO emissions will be well below the PSD significant emission rate of 100 tpy. The Table 4-3 analysis also indicates that there will be a net decrease in actual CO emissions in the later years (i.e., 2014 and 2015) due to reductions in Unit 2 utilization. In addition, there will be a substantial reduction in actual NO_x emissions due to the SCR control system that was recently installed on Unit 2.

As noted previously, there will be no changes in operation of the Unit 2 air emission control equipment other than a reduction in urea consumption; i.e., the controlled emission rates of NO_x, SO₂, PM, and H₂SO₄ mist will remain approximately at their current levels. Based on the analysis of CO emissions, no significant change in VOC emissions is expected since the formation of VOC and CO are both related to the same combustion parameters. Accordingly, the DGS Unit 2 LNB project is not subject to PSD NSR.

GRU proposes to verify the estimates of projected actual CO emissions using the process CO CEMS to provide a consistent basis for comparing baseline and projected actual emission rates. Following installation and shakedown of the Unit 2 LNB system, the process CO CEMS data, based on a minimum of 144 hours of operations, will be used to determine the actual Unit 2 CO emission rate. The Unit 2 ARP NO_x CEMS will be used to monitor future actual NO_x emission rates.

Table 4-3. Unit 2 LNB Project—Projected Actual Emissions

A. Projected Actual Emission Rates (lb/MMBtu)

Pollutant	Emission Rate (lb/MMBtu)
CO	0.0143
NO _x	0.1000

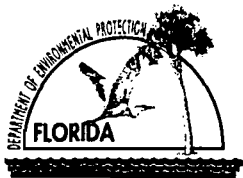
B. Projected Actual Emission Rates (tpy)

Year	Heat Input (MMBtu/yr)	Projected Actual Emissions		Baseline Actual Emissions		Net Change in Emissions	
		CO (tpy)	NO _x (tpy)	CO (tpy)	NO _x (tpy)	CO (tpy)	NO _x (tpy)
2011	13,698,489	97.9	684.9	100.0	3,799.2	-2.0	-3,114.3
2012	15,071,369	107.8	753.6	100.0	3,799.2	7.8	-3,045.6
2013	15,649,883	111.9	782.5	100.0	3,799.2	11.9	-3,016.7
2014	7,198,402	51.5	359.9	100.0	3,799.2	-48.5	-3,439.3
2015	7,099,003	50.8	355.0	100.0	3,799.2	-49.2	-3,444.2

Sources: GRU, 2011.
ECT, 2011.

APPENDIX

FDEP APPLICATION FOR AIR PERMIT—LONG FORM



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

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BUREAU OF
REGULATION

To ensure accuracy, please see form instructions

Identification of Facility

1. Facility Owner/Company Name: City of Gainesville Gainesville Regional Utilities (GRU)	
2. Site Name: Deerhaven Generating Station	
3. Facility Identification Number: 0010006	
4. Facility Location...: Street Address or Other Locator: 10001 NW 13th Street City: Gainesville County: Alachua Zip Code: 33653	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: Robert W. Klemans, P.E., Supervising Utility Engineer	
2. Application Contact Mailing Address... Organization/Firm: City of Gainesville, GRU Street Address: P.O. Box 147117 (A136) City: Gainesville State: FL Zip Code: 32614-7117	
3. Application Contact Telephone Numbers... Telephone: (352) 393-1283 ext. Fax: (352) 334-3151	
4. Application Contact Email Address: klemansrw@gru.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 1/13/11	3. PSD Number (if applicable):
2. Project Number(s): 00100002-614	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

Air construction permit application for the installation of a low-NO_x burner (LNB) system on Deerhaven Generating Station Unit 2.

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name : John W. Stanton, Assistant General Manager - Energy Supply
2. Owner/Authorized Representative Mailing Address... Organization/Firm: City of Gainesville, Gainesville Regional Utilities (GRU) Street Address: P.O. Box 147117 (A132) City: Gainesville State: Florida Zip Code: 32614-7117
3. Owner/Authorized Representative Telephone Numbers... Telephone: (352) 393-1789 ext. Fax: (352) 334-2786
4. Owner/Authorized Representative E-mail Address: stantonjw@gru.com
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>  _____ Signature _____ Date 1-11-11

APPLICATION INFORMATION

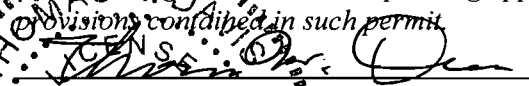
Application Responsible Official Certification **NOT APPLICABLE**

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

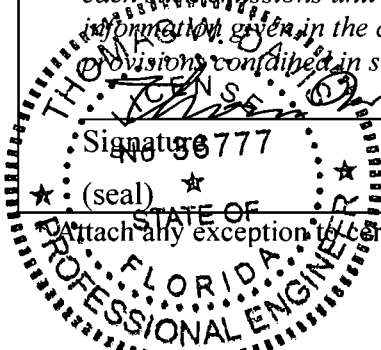
1. Application Responsible Official Name:
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source, CAIR source, or Hg Budget source.
3. Application Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
4. Application Responsible Official Telephone Numbers... Telephone: () ext. Fax: ()
5. Application Responsible Official E-mail Address:
6. Application Responsible Official Certification: <p>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. 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 and all other applicable requirements identified in this application to which the Title V source is subject. 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 the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</p> <p>_____ Signature</p> <p>_____ Date</p>

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Thomas W. Davis Registration Number: 36777
2. Professional Engineer Mailing Address... Organization/Firm: Environmental Consulting & Technology, Inc. Street Address: 3701 Northwest 98th Street City: Gainesville State: Florida Zip Code: 32606-5004
3. Professional Engineer Telephone Numbers... Telephone: (352) 248 – 3351 ext. Fax: (352) 332 - 6722
4. Professional Engineer Email Address: tdavis@ectinc.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(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</i> <i>(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.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/> 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 plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, 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.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, 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.</i>  Signature: _____ Date: <u>1/12/11</u> Registration No. 36777 (seal) STATE OF FLORIDA PROFESSIONAL ENGINEER

Attach any exception to certification statement.



II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone 17 East (km) 365.70 North (km) 3,292.60		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
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 :			

Facility Contact

1. Facility Contact Name: Robert W. Klemans, P.E., Supervising Utility Engineer
2. Facility Contact Mailing Address... Organization/Firm: City of Gainesville, GRU Street Address: P.O. Box 147117 (A136) City: Gainesville State: FL Zip Code: 32614-7117
3. Application Contact Telephone Numbers... Telephone: (352) 393-1283 ext. Fax: (352) 334-3151
4. Application Contact Email Address: klemansrw@gru.com

Facility Primary Responsible Official **NOT APPLICABLE**

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: () - ext. Fax: () -
4. Facility Primary Responsible Official E-mail Address:

FACILITY INFORMATION

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR 60)	
10. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	
<p>Unit 2 is subject to NSPS Subpart D.</p> <p>Combustion Turbine No. 3 is subject to NSPS Subpart GG.</p> <p>The coal handling and storage activities (excluding Emission Points CH-006, CH-007, and CH-008) are subject to NSPS Subpart Y.</p> <p>The emergency diesel engines are subject to NESHAPS Subpart ZZZZ.</p>	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
NOX	A	N
SO2	A	N
PM	B	N
PM10	A	N
CO	A	N
Sulfuric Acid Mist (SAM)	B	N
Hydrochloric acid (H106)	A	N
Hydrofluoric acid (H107)	A	N
Total HAPs (HAPs)	A	N

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1.	Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Previously Submitted, Date: <u>May 2009</u>
2.	Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Previously Submitted, Date: <u>May 2009</u>
3.	Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Previously Submitted, Date: <u>May 2009</u>

Additional Requirements for Air Construction Permit Applications (Unit 2 LNB Project)

1.	Area Map Showing Facility Location:		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable (existing permitted facility)
2.	Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL):		
<input checked="" type="checkbox"/>	Attached, Document ID: See Section 3.0		
3.	Rule Applicability Analysis:		
<input checked="" type="checkbox"/>	Attached, Document ID: See Section 4.0 (PSD NSR Applicability)		
4.	List of Exempt Emissions Units:		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable
5.	Fugitive Emissions Identification:		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable
6.	Air Quality Analysis (Rule 62-212.400(7), F.A.C.):		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable
7.	Source Impact Analysis (Rule 62-212.400(5), F.A.C.):		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.):		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.):		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):		
<input type="checkbox"/>	Attached, Document ID: _____	<input checked="" type="checkbox"/>	Not Applicable

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

NOT APPLICABLE

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units:
 Attached, Document ID: _____ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

NOT APPLICABLE

1. List of Insignificant Activities: (Required for initial/renewal applications only)
 Attached, Document ID: _____ Not Applicable (revision application)
2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought)
 Attached, Document ID: _____
 Not Applicable (revision application with no change in applicable requirements)
3. Compliance Report and Plan: (Required for all initial/revision/renewal applications)
 Attached, Document ID: _____
Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only)
 Attached, Document ID: _____
 Equipment/Activities Onsite but Not Required to be Individually Listed
 Not Applicable
5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only)
 Attached, Document ID: _____ Not Applicable
6. Requested Changes to Current Title V Air Operation Permit:
 Attached, Document ID: _____ Not Applicable

FACILITY INFORMATION

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program

1. Acid Rain Program Forms:

Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):

Attached, Document ID: _____ Previously Submitted, Date: May 2009

Not Applicable (not an Acid Rain source)

Phase II NO_x Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable

New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):

Attached, Document ID: _____ Previously Submitted, Date: May 2009

Not Applicable (not a CAIR source)

Additional Requirements Comment

EMISSIONS UNIT INFORMATION

Section [1] of [1]

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

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

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

Emissions Unit Description and Status

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

This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section:
Fossil Fuel-Fired Steam Boiler Unit No. 2

3. Emissions Unit Identification Number: **005 (Internal ID: DH-2)**

4. Emissions Unit Status Code: A	5. Commence Construction Date: N/A	6. Initial Startup Date: N/A	7. Emissions Unit Major Group SIC Code: 49
--	---	-------------------------------------	---

8. Federal Program Applicability: (Check all that apply)

Acid Rain Unit

CAIR Unit

Hg Budget Unit

9. Package Unit: _____ Model Number: _____
Manufacturer: _____

10. Generator Nameplate Rating: **251 MW**

11. Emissions Unit Comment: **Dry Bottom, Wall-fired Boiler**

Field 10 is based on :
295,000 kVA @ 1.0 power factor
250.75 MW @ 0.85 power factor

EMISSIONS UNIT INFORMATION

Section [1] of [1]

Emissions Unit Control Equipment/Method: Control 1 of 4

1. Control Equipment/Method Description:

High Efficiency Hot-Side Electrostatic Precipitator (ESP)

2. Control Device or Method Code: **010**

Emissions Unit Control Equipment/Method: Control 2 of 4

1. Control Equipment/Method Description:

Selective Catalytic Reduction (SCR)

2. Control Device or Method Code: **139**

Emissions Unit Control Equipment/Method: Control 3 of 4

1. Control Equipment/Method Description:

Dry Circulating Scrubber (CDS)

2. Control Device or Method Code: **119**

Emissions Unit Control Equipment/Method: Control 4 of 4

1. Control Equipment/Method Description:

Medium Temperature (180°F <T <250°F) Fabric Filter (FF)

2. Control Device or Method Code: **017**

EMISSIONS UNIT INFORMATION

Section [1] of [1]

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate:
2. Maximum Production Rate:
3. Maximum Heat Input Rate: 2,428 million Btu/hr
4. Maximum Incineration Rate: pounds/hr tons/day
5. Requested Maximum Operating Schedule: 24 hours/day 7 days/week 52 weeks/year 8,760 hours/year
6. Operating Capacity/Schedule Comment: Maximum heat input (Field 3) is based on coal-firing. Maximum heat input is 900 MMBtu/hr for No. 1 or 2 fuel oil-firing, and 591 MMBtu/hr for natural gas-firing.

EMISSIONS UNIT INFORMATION

Section [1] of [1]

C. EMISSION POINT (STACK/VENT) INFORMATION**(Optional for unregulated emissions units.)****Emission Point Description and Type**

1. Identification of Point on Plot Plan or Flow Diagram: DH-2	2. Emission Point Type Code: 1	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: N/A		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: N/A		
5. Discharge Type Code: V	6. Stack Height: 350 feet	7. Exit Diameter: 18.5 feet
8. Exit Temperature: 178 °F	9. Actual Volumetric Flow Rate: 761,439 acfm	10. Water Vapor: N/A %
11. Maximum Dry Standard Flow Rate: N/A dscfm	12. Nonstack Emission Point Height: N/A feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
15. Emission Point Comment:		

EMISSIONS UNIT INFORMATION

Section [1] of [1]

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type): Bituminous Coal Burned		
2. Source Classification Code (SCC): 1-01-002-02		3. SCC Units: Tons Burned
4. Maximum Hourly Rate: 93.4	5. Maximum Annual Rate: 818,049	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 2.50	8. Maximum % Ash: 17.0	9. Million Btu per SCC Unit: 26
10. Segment Comment: Unit 2 can co-fire coal, natural gas, and Nos. 1 and 2 fuel oil. Field 9 value based on nominal coal heat content of 13,000 Btu/lb.		

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type): Natural Gas Burned		
2. Source Classification Code (SCC): 1-01-006-01		3. SCC Units: Million Cubic Feet Burned
4. Maximum Hourly Rate: 0.57	5. Maximum Annual Rate: 4,978	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: N/A	8. Maximum % Ash: N/A	9. Million Btu per SCC Unit: 1,040
10. Segment Comment: Unit 2 can co-fire coal, natural gas, and Nos. 1 and 2 fuel oil. Field 4 maximum hourly rate based on 591 MMBtu/hr heat input and nominal natural gas heat content of 1,040 Btu/ft³.		

EMISSIONS UNIT INFORMATION

Section [1] of [1]

D. SEGMENT (PROCESS/FUEL) INFORMATION (CONTINUED)

Segment Description and Rate: Segment 3 of 3

1. Segment Description (Process/Fuel Type): Distillate Fuel Oils Burned		
2. Source Classification Code (SCC): 1-01-005-01		3. SCC Units: Thousand Gallons Burned
4. Maximum Hourly Rate: 6.43	5. Maximum Annual Rate: 56,314	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur: 0.05	8. Maximum % Ash: 0.05	9. Million Btu per SCC Unit: 140
10. Segment Comment: Unit 2 can co-fire coal, natural gas, and Nos. 1 and 2 fuel oil. Field 4 maximum hourly rate based on 900 MMBtu/hr heat input and nominal distillate fuel oil heat content of 140,000 Btu/gal.		

Segment Description and Rate: Segment __ of __

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):		3. SCC Units:
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

EMISSIONS UNIT INFORMATION

Section [1] of [1]

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NOX	139		EL
SO2	119		EL
PM	010	017	EL
PM10	010	017	NS
CO			NS
VOC			NS
H106			NS
H107			NS
HAPS			NS
Note: Pollutant Detail Information is provided for NO_x and CO. Please see the May 2009 Title V permit application for the remaining Unit 2 pollutants.			

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS
 (Optional for unregulated emissions units.)**

Note: Pollutant detailed information is pro

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: NOX		2. Total Percent Efficiency of Control: 90 %	
3. Potential Emissions: 1,699.6 lb/hour 4,891.9 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): N/A to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code: 0	
8.a. Baseline Actual Emissions (if required): 3,799.2 tons/year		8.b. Baseline 24-month Period: From: 1/2006 To: 12/2010	
9.a. Projected Actual Emissions (if required): 684.9 tons/year (2011)		9.b. Projected Monitoring Period: <input checked="" type="checkbox"/> 5 years <input type="checkbox"/> 10 years	
10. Calculation of Emissions: 0.7 lb/MMBtu (NSPS Subpart D) x 2,428 MMBtu/hr = 1,699.6 lb/hr 0.46 lb/MMBtu (Phase II NO_x Compliance Plan) x 2,428 MMBtu/hr = 1,116.9 lb/hr [(1,116.9 lb/hr x 8,760 hr/yr) / 2,000 lb/ton] = 4,891.9 tons/yr			
11. Potential, Fugitive, and Actual Emissions Comment:			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 4

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions: N/A
3. Allowable Emissions and Units: 0.7 lb/MMBtu (3-Hour Average)	4. Equivalent Allowable Emissions: 1,699.6 lb/hour N/A tons/year
5. Method of Compliance: Annual stack test using EPA Reference Method 7, 7A, 7C, 7D, 7E or CEMS	
6. Allowable Emissions Comment (Description of Operating Method): 40 CFR Part 60, Subpart D, 60.44(a)(3) – Solid fuels Title V Permit 0010006-010-AV, Condition B.9.(a)(3). Allowable emission rate will be prorated when different fuels are burned simultaneously.	

Allowable Emissions Allowable Emissions 2 of 4

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions: N/A
3. Allowable Emissions and Units: 0.46 lb/MMBtu (Annual Average)	4. Equivalent Allowable Emissions: N/A lb/hour 4,891.9 tons/year
5. Method of Compliance: CEMS	
6. Allowable Emissions Comment (Description of Operating Method): Acid Rain Program Phase II Compliance Plan limit.	

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 3 of 4

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions: N/A
3. Allowable Emissions and Units: 0.3 lb/MMBtu (3-Hour Average)	4. Equivalent Allowable Emissions: 728.4 lb/hour N/A tons/year
5. Method of Compliance: Annual stack test using EPA Reference Method 7, 7A, 7C, 7D, 7E or CEMS	
6. Allowable Emissions Comment (Description of Operating Method): 40 CFR Part 60, Subpart D, 50.44(a)(2) – Liquid Fuels Title V Permit 0010006-010-AV, Condition B.9.(a)(2). Allowable emission rate will be prorated when different fuels are burned simultaneously.	

Allowable Emissions Allowable Emissions 4 of 4

1. Basis for Allowable Emissions Code: RULE	2. Future Effective Date of Allowable Emissions: N/A
3. Allowable Emissions and Units: 0.2 lb/MMBtu (3-Hour Average)	4. Equivalent Allowable Emissions: 485.6 lb/hour N/A tons/year
5. Method of Compliance: Annual stack test using EPA Reference Method 7, 7A, 7C, 7D, 7E or CEMS	
6. Allowable Emissions Comment (Description of Operating Method): 40 CFR Part 60, Subpart D, 60.44(a)(1) – Gaseous fuels Title V Permit 0010006-010-AV, Condition B.9.(a)(1). Allowable emission rate will be prorated when different fuels are burned simultaneously.	

**F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION –
 POTENTIAL, FUGITIVE, AND ACTUAL EMISSIONS
 (Optional for unregulated emissions units.)**

Complete a Subsection F1 for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V operation permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

Potential, Estimated Fugitive, and Baseline & Projected Actual Emissions

1. Pollutant Emitted: CO		2. Total Percent Efficiency of Control: N/A	
3. Potential Emissions: 34.7 lb/hour 152.0 tons/year		4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
5. Range of Estimated Fugitive Emissions (as applicable): N/A to tons/year			
6. Emission Factor: Reference:		7. Emissions Method Code: 2	
8.a. Baseline Actual Emissions (if required): 100.0 tons/year		8.b. Baseline 24-month Period: From: 1/2006 To: 12/2010	
9.a. Projected Actual Emissions (if required): 97.9 tons/year (2011)		9.b. Projected Monitoring Period: <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years See Comment in Field 11 Below	
10. Calculation of Emissions: 0.0143 lb/MMBtu (Unit 2 Process CEMS Data) x 2,428 MMBtu/hr = 34.7 lb/hr [(34.7 lb/hr x 8,760 hr/yr) / 2,000 lb/ton] = 152.0 tons/yr			
11. Potential, Fugitive, and Actual Emissions Comment: GRU proposes to verify the estimates of projected actual CO emissions using the process CO CEMS to provide a consistent basis for comparing baseline and projected actual emission rates. Following installation and shakedown of the Unit 2 LNB system, the process CO CEMS data, based on a minimum of 144 hours of operations, will be used to determine the actual Unit 2 CO emission rate.			

**F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION -
 ALLOWABLE EMISSIONS**

Complete Subsection F2 if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation. **NOT APPLICABLE**

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

G. VISIBLE EMISSIONS INFORMATION

Complete Subsection G if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation 1 of 1

1. Visible Emissions Subtype: VE20	2. Basis for Allowable Opacity: <input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: 20 % Exceptional Conditions: 27 % Maximum Period of Excess Opacity Allowed: 6 min/hour	
4. Method of Compliance: DEP Method 9 or COMS	
5. Visible Emissions Comment: 40 CFR Part 60, Subpart D, 60.42(a)(2). Title V Permit 0010006-010-AV, Condition B.7. Opacity standards do not apply during startup, shutdown, and malfunction per 40 CFR Part 60, Subpart A, 60.11(c).	

Visible Emissions Limitation: Visible Emissions Limitation of

1. Visible Emissions Subtype:	2. Basis for Allowable Opacity: <input type="checkbox"/> Rule <input type="checkbox"/> Other
3. Allowable Opacity: Normal Conditions: % Exceptional Conditions: % Maximum Period of Excess Opacity Allowed: min/hour	
4. Method of Compliance:	
5. Visible Emissions Comment:	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

H. CONTINUOUS MONITOR INFORMATION

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 1 of 5

1. Parameter Code: VE	2. Pollutant(s): N/A
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Spectrum Model Number: Spectrum 41 Serial Number: 0347-8005	
5. Installation Date: 11/25/04	6. Performance Specification Test Date: 12/07/04
7. Continuous Monitor Comment: 40 CFR Part 75 and 40 CFR Part 60, Subpart D.	

Continuous Monitoring System: Continuous Monitor 2 of 5

1. Parameter Code: CO2	2. Pollutant(s): N/A
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Siemens Model Number: Ultramat 6E Serial Number: NI-S8-0790	
5. Installation Date: 11/25/04	6. Performance Specification Test Date: 12/16/04
7. Continuous Monitor Comment: 40 CFR Part 75 and 40 CFR Part 60, Subpart D.	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

H. CONTINUOUS MONITOR INFORMATION (Continued)**Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.****Continuous Monitoring System:** Continuous Monitor 3 of 5

1. Parameter Code: FLOW	2. Pollutant(s): N/A
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: Monitor Labs Model Number: Ultraflow 150 Serial Number: 1500232	
5. Installation Date: 11/25/04	6. Performance Specification Test Date: 12/16/04
7. Continuous Monitor Comment: 40 CFR Part 75.	

Continuous Monitoring System: Continuous Monitor 4 of 5

1. Parameter Code: EM	2. Pollutant(s): NOX
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: TECO Model Number: 42C Serial Number: 0427508531	
5. Installation Date: 11/25/04	6. Performance Specification Test Date: 12/16/04
7. Continuous Monitor Comment: 40 CFR Part 75 and 40 CFR Part 60, Subpart D.	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

H. CONTINUOUS MONITOR INFORMATION (Continued)

Complete Subsection H if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor 5 of 5

1. Parameter Code: EM	2. Pollutant(s): SO2
3. CMS Requirement:	<input checked="" type="checkbox"/> Rule <input type="checkbox"/> Other
4. Monitor Information... Manufacturer: TECO Model Number: 43C Serial Number: 0425408089	
5. Installation Date: 11/25/04	6. Performance Specification Test Date: 12/16/04
7. Continuous Monitor Comment: 40 CFR Part 75 and 40 CFR Part 60, Subpart D.	

EMISSIONS UNIT INFORMATION

Section [1] of [1]

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>May 2009</u>
2. Fuel Analysis or Specification: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>May 2009</u>
3. Detailed Description of Control Equipment: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input checked="" type="checkbox"/> Attached, Document ID: <u>Section 3.0</u> <input type="checkbox"/> Not Applicable
4. Procedures for Startup and Shutdown: (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date: _____ <input checked="" type="checkbox"/> Not Applicable (construction application)
5. Operation and Maintenance Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Previously Submitted, Date _____ <input checked="" type="checkbox"/> Not Applicable
6. Compliance Demonstration Reports/Records: <input type="checkbox"/> Attached, Document ID: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> Previously Submitted, Date: _____ Test Date(s)/Pollutant(s) Tested: _____ <input type="checkbox"/> To be Submitted, Date (if known): _____ Test Date(s)/Pollutant(s) Tested: _____ <input checked="" type="checkbox"/> Not Applicable Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.
7. Other Information Required by Rule or Statute: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

