

Farzie Shelton, ChE; REM

Associate GM Technical Support

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SENT VIA FEDEX

MAR 05 2010

March 3, 2010

BUREAU OF AIR REGULATION

Ms. Trina Vielhauer, Chief
Bureau of Air Regulation
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

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MAR 0 5 2010

EUPEAU OF AIR REGULATION

RE:

Lakeland Electric C.D. McIntosh, Jr. Power Plant – Facility No. 1050004 EU ID 028 (Unit 5) Low Load Turndown Construction Application

1050004-028-AC

Dear Ms. Vielhauer:

Lakeland Electric would like to submit this minor source air construction permit application for approval to install a Low Load Turndown system on McIntosh EU ID 028 (Unit 5). No emissions increases will result from this project as this improvement will effectively reduce CO and VOC emissions at lower loads, and therefore, is not a "modification" as defined in Rule 62-210.200(205), Florida Administrative Code. Lakeland Electric would like to make these improvements during the Unit's next outage, scheduled to tentatively start April 9, 2010, and therefore requests that the Department not delay in the issuance of this permit. Enclosed please find four (4) copies of this application signed by Mr. Ken Kosky of Golder Associates and certified by Mr. Thomas J. Trickey our Authorized Representative. This application has been prepared in accordance with Rule 62-210, F.A.C. and instructions associated with DEP Form No. 62.210.900(1).

If you have any questions regarding the enclosed, please do not hesitate to contact me.

Sincerely.

Farzie Shelton

Enclosures:

4 copies of application

City of Lakeland • Department of Electric Utilities



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DUREAU OF AR REGULATION

AIR PERMIT APPLICATION FOR C.D. MCINTOSH, JR. POWER PLANT

Lakeland Electric Lakeland, Florida

Prepared For: Lakeland Electric

501 East Lemon Street

Lakeland, FL 33801-5079 USA

Submitted By: Golder Associates Inc.

6026 NW 1st Place

Gainesville, FL 32607 USA

A world of capabilities delivered locally

March 2010





Department of Environmental Protection

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Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORMUREAU OF AIR REGULATION

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.

To ensure accuracy, please see form instructions.

Identification of Facility

1.	Facility Owner/Company Name: Lakeland El	ectric			
2.	Site Name: C. D. McIntosh, Jr. Power Plant				
3.	Facility Identification Number: 1050004				
4.	Facility Location	-			
	Street Address or Other Locator: 3030 East La	ake Parker Drive			
	City: Lakeland County: Po	lk	Zip Code: 33805		
5.	Relocatable Facility?	Existing Title	V Permitted Facility?		
	☐ Yes ☐ No	⊠ Yes	□ No .		
Ap	oplication Contact				
1.	Application Contact Name: Ms. Farzie Shelto	n, Associate Gen	eral Manager of Technical		
	Support	,,			
2.					
	Organization/Firm: Lakeland Electric				
	Street Address: 501 East Lemon Street				
	City: Lakeland State	: FL	Zip Code: 33801-5079		
3.	Application Contact Telephone Numbers				
	Telephone: (863) 834 - 6603 ext.	Fax: (863) 834	- 6362		
4.	Application Contact E-mail Address: farzie.s	nelton@lakelande	electric.com		
Application Processing Information (DEP, Use)					
1.	Date of Receipt of Application: 3/5/12	3. PSD Number	r (if applicable):		
2.	Project Number(s): 105 06 64-1025-A	4. Siting Numb	er (if applicable):		

DEP Form No. 62-210.900(1) – Form Effective: 3/16/08

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

This minor source air construction permit application is for approval to install a Low Load Turndown (LLT) system on McIntosh Unit 5 (EU ID 028) that reduces CO and VOC emissions at lower loads down to 25-percent.

There are no emissions increases and the proposed project is not a "modification" as defined in Rule 62-210.200(205), Florida Administrative Code (F.A.C.).

APPLICATION INFORMATION

Scope of Application

Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
McIntosh Unit 5 - 370 MW Combined Cycle Combustion Turbine	AC1F	
<u></u>		
·		
		· · · · · · · · · · · · · · · · · · ·
	McIntosh Unit 5 - 370 MW Combined Cycle Combustion Turbine	Description of Emissions Unit Type McIntosh Unit 5 - 370 MW Combined Cycle Combustion Turbine AC1F

Application Processing Fee	•	`	
Check one: Attached - Amount: \$	-		

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name:

Mr. Thomas J. Trickey, P.E., Plant Manager

2. Owner/Authorized Representative Mailing Address...

Organization/Firm: Lakeland Electric

Street Address: 501 E. Lemon Street

City: Lakeland

State: FL

Zip Code: 33801-5079

3. Owner/Authorized Representative Telephone Numbers...

Telephone: (863) 834 - 6477 ext. N/A

Fax: (863) 834 - 5670

- 4. Owner/Authorized Representative E-mail Address: tom.trickey@lakelandelectric.com
- 5. Owner/Authorized Representative Statement:

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.

Subject: C.D. McIntosh, Jr. Power Plant – 1050004-023-AV Unit 5 (EU 028) Low Load Turndown Project

Signature

3-3-2010

Date

DEP Form No. 62-210.900(1) Effective: 3/16/08

APPLICATION INFORMATION

Application Responsible Official Certification

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):
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.
 For a partnership or sole proprietorship, a general partner or the proprietor, respectively. For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
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:
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.
Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1.	Professional Engineer Name: Ken Kosky
	Registration Number: 14996
2.	Professional Engineer Mailing Address
	Organization/Firm: Golder Associates Inc.**
•	Street Address: 6026 NW 1st Place
	City: Gainesville State: FL Zip Code: 32607
3.	Professional Engineer Telephone Numbers
	Telephone: (352) 336-5600 ext. 21156 Fax: (352) 336-6603
4.	Professional Engineer E-mail Address:
5.	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.
	(3) If the purpose of this application is to obtain a Title V air operation permit (check here \square , 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.
	(4) If the purpose of this application is to obtain an air construction permit (check here \boxtimes , 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 \square , 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.
	(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 , 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.

Attach any exception to certification statement.

DEP Form No. 62-210-900(1) — Form Effective: 3/16/08

^{**}Board of Professional Engineers Certificate of Authorization #00001670.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and	<u>d Type</u>				
1. Facility UTM Coordinates			2. Facility Latitude/Longitude		
Zone 17 East (km) 409.0			Latitude (DD/MM/SS) 28/04/50		
North (km) 3,106.2		l Lor	Longitude (DD/MM/SS) 81/55/32		
3. Governmental	4. Facility St	atus 5. Fac	ility Major	6. Facility SIC(s):	
Facility Code:	Code:	Gro	oup SIC Code:		
0	Α	49		4911	
two diesel powere combustion turbin on-specification u natural gas, No. 6 refuse derived fue turbine and is prefusent Plant w	ed generators, or ne (Unit 5). FFFS sed oil (distillate fuel oil, and No. l, and petroleum rimarily fired wif as recently auth) and a coal	ne gas turbine pea SG Unit 1 is fired to oil is used as an . 2 fuel oil. FFFSC coke. Unit 5 cons th natural gas wi norized to constru processing and	aking unit, and owith No. 6 fuel of ignitor). FFFSG Unit 3 is primalists of a Siemer ith distillate oil uct a truck unl	generators (FFFSG), one combined-cycle oil, natural gas, and is Unit 2 is fired with arily fired with coal, as 501G combustion as a backup. The oading hopper and em (EU032) under	
1. Facility Contact Ms. Farzie Shelto Contact In Contac	n, General Mana Mailing Address		upport		
•	s: 501 E. Lemon				
	y: Lakeland	State: FL	Zip	Code: 33801-5079	
3. Facility Contact		pers:			
Telephone: (863	8) 834 - 6603	ext.	Fax: (863) 8	34 - 6362	
4. Facility Contact l	E-mail Address:	farzie.shelton@la	kelandelectric.c	om	
Facility Primary Res	nonsible Officia	.1		-	
Complete if an "applacility "primary res	lication respons	– ible official" is id	entified in Sect	ion I that is not the	
. Facility Primary R	esponsible Offic	ial Name:			
. Facility Primary R Organization/Firm	:	ial Mailing Addre	2SS		
Street Address	•				
Cit	y:	State:	Zip (Code:	
. Facility Primary R	esponsible Offic	ial Telephone Nu	mbers		
Telephone: () .	ext. Fa	nx: ()		

DEP Form No. 62-210.900(1) - Form Effective: 3/16/08

4. Facility Primary Responsible Official E-mail Address:

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. Small Business Stationary Source Unknown
2. Synthetic Non-Title V Source
3. ⊠ Title V Source
4. Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)
5. Synthetic Minor Source of Air Pollutants, Other than HAPs
6. Major Source of Hazardous Air Pollutants (HAPs)
7. Synthetic Minor Source of HAPs
8. One or More Emissions Units Subject to NSPS (40 CFR Part 60)
9. One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)
10. ⊠ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)
11. Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))
Unit 1, Unit 2, Unit 3, and Unit 5 are regulated under Acid Rain, Phase II. Unit 2 is subject to NSPS Subpart D. Unit 3 is subject to Subpart Da. Unit 5 is subject to Subpart GG. The coal processing and conveying system (EU032), when constructed will be subject to Subpart Y.

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
РМ	A	[1 OI IV]:
PM10	A .	
VOC	A	
SO2	A	
NOx	A	
CO	A .	
HAPS	A	
нсі	A	
SAM	A	

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

l. Pollutant	2. Facility-	3. Emissions	4. Hourly	5. Annual	6. Basis for
Subject to	Wide Cap	Unit ID's	Cap	Cap	Emission
Emissions	[Y or N]?	Under Cap	(lb/hr)	(ton/yr)	Cap
Cap	(all units)	(if not all units)			
					
	<u> </u>	 		 	
				 	
				 	
		Į.			
					i
Facility W	ido on Multi I Leit	Emissions Con Com	- manta		
7. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
7. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
7. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
7. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		·
7. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
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7. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
7. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
7. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		
. Facility-W	ide or Multi-Unit	Emissions Cap Con	nment:		

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) Attached, Document ID: Previously Submitted, Date: July 2008
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) Attached, Document ID: Previously Submitted, Date: July 2008
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) Attached, Document ID: Previously Submitted, Date: July 2008
Ad	Iditional Requirements for Air Construction Permit Applications
1.	Area Map Showing Facility Location: ☐ Attached, Document ID: ☐ Not Applicable (existing permitted facility)
2.	Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): Attached, Document ID: Part II
3.	Rule Applicability Analysis:
4.	List of Exempt Emissions Units: Attached, Document ID: Not Applicable (no exempt units at facility)
5.	Fugitive Emissions Identification: Attached, Document ID: Not Applicable
6.	Air Quality Analysis (Rule 62-212.400(7), F.A.C.): ☐ Attached, Document ID: ☐ Not Applicable
7.	Source Impact Analysis (Rule 62-212.400(5), F.A.C.): Attached, Document ID: Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): ☐ Attached, Document ID: ☐ Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): Attached, Document ID: Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications

1.	List of Exempt Emissions Units:
	Attached, Document ID: Not Applicable (no exempt units at facility)
Ac	dditional Requirements for Title V Air Operation Permit Applications
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

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: July 2008
	☐ 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: July 2008 ☐ 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: July 2008
	☐ Not Applicable (not a CAIR source)
3.	Hg Budget Part (DEP Form No. 62-210.900(1)(c)):
	Attached, Document ID: Previously Submitted, Date:
	Not Applicable (not a Hg Budget unit)
<u>Ad</u>	ditional Requirements Comment

EMISSIONS UNIT INFORMATION

Section [1]
McIntosh Unit 5

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for an initial, revised or renewal Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for an air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised or renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes, and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit addressed in this application that is subject to air construction permitting and for each such emissions unit that is a regulated or unregulated unit for purposes of Title V permitting. (An emissions unit may be exempt from air construction permitting but still be classified as an unregulated unit for Title V purposes.) Emissions units classified as insignificant for Title V purposes are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

DEP Form No. 62-210.900(1) Effective: 3/16/08

EMISSIONS UNIT INFORMATION Section [1]

Section [1] McIntosh Unit 5

A. GENERAL EMISSIONS UNIT INFORMATION

<u>Title V Air Operation Permit Emissions Unit Classification</u>

	Day Ista Law I Inna		9 (Charle and 'Carrel	C
1.		air operation permit. S		ying for an initial, revised ng for an air construction
			missions Unit Inform	ation Section is a regulated
	emissions unit.	unit addressed in this E	missions Unit Inform	ntion Section is an
	unregulated en		missions out moin	ation section is an
<u>Еп</u>	nissions Unit Desci	ription and Status		
1.	Type of Emissions	Unit Addressed in this	Section: (Check one))
		s Unit Information Sect		
		or production unit, or a which has at least one of		
	•		-	gle emissions unit, a group
			-	ist one definable emission
	point (stack or	vent) but may also prod	luce fugitive emission	s.
			· · · · · · · · · · · · · · · · · · ·	gle emissions unit, one or
		<u> </u>		ce fugitive emissions only.
2.		issions Unit Addressed Combined Cycle Station		ne
		· · · · · · · · · · · · · · · · · · ·	,	
3.	Emissions Unit Ide	entification Number: 02	28	
4.	Emissions Unit	5. Commence	6. Initial Startup	7. Emissions Unit
	Status Code:	Construction	Date:	Major Group
	Α	Date:	January 2002	SIC Code:
R ·	Federal Program A	l Applicability: (Check al	that apply)	
0.	✓ Acid Rain Unit	• • •	· mar appry)	
	☐ CAIR Unit			
	☐ Hg Budget Uni	it	-	
9.	Package Unit:		-	
	Manufacturer: Sie		Model Number	: 501G
		ate Rating: 370 MW		
11.	Emissions Unit Co		inghouse) 501G comb	ustion turbine operating
	in combined cycle	with a HRSG and 120	MW steam electric t	urbine. The combustion
		ı natural gas or a maxi ıtain the additive Soltroı		Ifur No. 2 fuel oil. The the manufacturer.

DEP Form No. 62-210.900(1) Effective: 3/16/08

<u>Er</u>	missions Unit Control Equipment/Method: Control 1 of 4	
1.	Control Equipment/Method Description:	
	Water Injection – Oil firing.	

2. Control Device or Method Code: 028

Emissions Unit Control Equipment/Method: Control 2 of 4

1. Control Equipment/Method Description: Selective Catalytic Reduction (SCR) – Natural gas firing.

2. Control Device or Method Code: 139

Emissions Unit Control Equipment/Method: Control 3 of 4

Control Equipment/Method Description:
 Dry Low NO_x combustion – Natural gas firing.

2. Control Device or Method Code: 205

Emissions Unit Control Equipment/Method: Control 4 of 4

1. Control Equipment/Method Description: Oxidation catalyst.

2. Control Device or Method Code: 039

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EMISSIONS UNIT INFORMATION

Section [1] McIntosh Unit 5

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1.	Maximum Process or Throughpu	t Rate:	
2.	Maximum Production Rate:		
3.	Maximum Heat Input Rate: 2,40	7 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	8760 hours/year
	Maximum heat input rates: Natura No. 2 fuel oil firing – 2,236 MMBto Heat input rates are based on the 59°F temperature, 60% relative hu Based on application for Permit N	u/hr (LHV, at baseload) lower heating value of th midity, 100% load, and 14	e fuels at ambient conditions of

DEP Form No. 62-210.900(1) Effective: 3/16/08

C. EMISSION POINT (STACK/VENT) INFORMATION (Optional for unregulated emissions units.)

Emission Point Description and Type

1.	Identification of Point on Flow Diagram: \$007	Plot Plan or	2. Emission Point 7	Гуре Code:
3.	Descriptions of Emission Exhausts through a single	stack.		
4.	ID Numbers or Descriptio	ns of Emission Ui	nits with this Emission	
5.	Discharge Type Code: V	6. Stack Height 300 feet	:	7. Exit Diameter: 20 Feet
8.	Exit Temperature: 187°F	9. Actual Volum 1,271,428 acf	metric Flow Rate:	10. Water Vapor: 12.44 %
11.	Maximum Dry Standard F dscfm	low Rate:	12. Nonstack Emissi Feet	on Point Height:
13.	Emission Point UTM Coo Zone: 17 East (km): North (km)	408.79	14. Emission Point I Latitude (DD/M) Longitude (DD/I)	,
15.	Emission Point Comment: Stack parameters for ISO t For oil firing, 188°F exit te at baseload; ISO condition	urbine inlet operat mperature, 1,291,	ting condition firing na	atural gas at baselaod.

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EMISSIONS UNIT INFORMATION Section [1]

McIntosh Unit 5

D. SEGMENT (PROCESS/FUEL) INFORMATION

External Combustion Boilers; Electric Generation; Natural-Gas Boilers; Turbine

Segment Description and Rate: Segment 1 of 2

1. Segment Description (Process/Fuel Type):

				·
2.	Source Classification Cod 2-01-002-01	e (SCC):	3. SCC Units Million cub	: ic feet natural gas burned
4.	Maximum Hourly Rate: 2.53	5. Maximum A 16,462	Annual Rate:	6. Estimated Annual Activity Factor:
7.	Maximum % Sulfur:	8. Maximum 9	% Ash:	9. Million Btu per SCC Unit: 950
10.	Segment Comment: Maximum hourly rate = 2,4 Annual fuel heat input limiturbine inlet temperature.	07 MMBtu/hr / 950 ted to 15.639 X 10 See Permit Nos. I	0 MMBtu/MM ft ³ 1 ¹² Btu (LHV) per PSD-FL-245 and	(LHV) = 2.53 MM ft ³ /hr year. Max hourly a function of 1050004-016-AV.
Se	gment Description and Ra	ite: Segment 2 o	f <u>2</u>	
1.	Segment Description (Proc External Combustion Boile		ration; Distillate	Oil (Diesel); Turbine.
	·	·		
2.	Source Classification Cod 2-01-001-01	e (SCC):	3. SCC Units 1,000 gallo	
4.	Maximum Hourly Rate: 17.0	5. Maximum A 4,251	Annual Rate:	6. Estimated Annual Activity Factor:
7.	Maximum % Sulfur:	8. Maximum 9	% Ash:	9. Million Btu per SCC Unit: 132
10.	Segment Comment: Maximum hourly rate = 2,2 Annual limited by Permit N	36 MMBtu/hr x 1,0	000 gallons / 131 V to 15.639 X 10	.5 MMBtu = 17,003 gal/hr ¹² Btu (LHV) per year. Maximum

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Soltron as recommended by the manufacturer.

hourly a function of turbine inlet temperature. The diesel fuel may contain the additive

EMISSIONS UNIT INFORMATION

Section [1] McIntosh Unit 5

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
PM:	Device Code	Device code	EL EL
PM10	•		NS
СО	039		EL
VOC	039		WP
SO2			EL
NOx	205, 028	139	EL
SAM			NS

POLLUTANT DETAIL INFORMATION Page [1] of [2] Carbon Monoxide - CO

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

Pollutant Emitted: CO	2. Total Perc	ent Efficie	ency of Control:
3. Potential Emissions: Ib/hour	tons/year		netically Limited? Tes 🛛 No
5. Range of Estimated Fugitive Emissions (as to tons/year	s applicable):		
6. Emission Factor: 2 ppm @ 100% load firing Reference: Title V Permit 1050004-023-AV	NG		7. Emissions Method Code:
8.a. Baseline Actual Emissions (if required):	8.b. Baseline	24-month	Period:
tons/year	From:		o:
9.a. Projected Actual Emissions (if required):	9.b. Projected		
tons/year	☐ 5 yea		0 years
10. Calculation of Emissions:		,	
See Part II for low load CO emissions using I	LLT system.		
·			
·			•
11. Potential, Fugitive, and Actual Emissions Co	omment:		
- ·			

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POLLUTANT DETAIL INFORMATION

Page [1] of [2]

Carbon Monoxide – CO

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 1 of 1

1.	Basis for Allowable Emissions Code: OTHER	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 No changes in allowable emissions result fro		
<u>Al</u>	lowable 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):
Al	lowable Emissions Allowable Emissions	c	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):

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POLLUTANT DETAIL INFORMATION
Page [2] of [2]
Volatile Organic Compounds – VOC

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

rotential, Estimated rugitive, and dasenne o	t Projecteu Ac	tuai Eiiiis	<u>810118</u>
1. Pollutant Emitted: VOC	2. Total Perc	ent Efficie	ency of Control:
3. Potential Emissions:		4. Synth	netically Limited?
lb/hour	tons/year	ďΥ	-
5. Range of Estimated Fugitive Emissions (as			
to tons/year			
6. Emission Factor:			7. Emissions
		-	Method Code:
Reference: Title V Permit 1050004-023-AV			
8.a. Baseline Actual Emissions (if required):	8.b. Baseline	24-month	Period:
tons/year	From:	T	o:
9.a. Projected Actual Emissions (if required):	9.b. Projected	Monitori	ng Period:
tons/year	☐ 5 yea	rs 🗌 10	0 years
10. Calculation of Emissions:	<u> </u>		
See Part II for low load VOC emissions using	LLT system.		
			٠. ٠
_			
11 Detential Engitive and Astrol Emissions C			
11. Potential, Fugitive, and Actual Emissions Co	omment:		:

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POLLUTANT DETAIL INFORMATION
Page [2] of [2]
Volatile Organic Compounds-VOC

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 1 of 1

1.	Basis for Allowable Emissions Code: OTHER	2. Future Effective Date of Allowable Emissions:
3.	Allowable Emissions and Units:	4. Equivalent Allowable Emissions:
<u></u>	·	lb/hour tons/year
5.	Method of Compliance:	
6.	Allowable Emissions Comment (Description No changes in allowable emissions result from	
Al	lowable 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	n of Operating Method):
Al	lowable 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):

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EMISSIONS UNIT INFORMATION

Section [1] McIntosh Unit 5

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 2

_	Sible Emissions Chritation: Visible Emission		
1.	Visible Emissions Subtype:	2. Basis for Allowabl	e Opacity:
	VE20	⊠ Rule	☐ Other
3.	Allowable Opacity:		
	Normal Conditions: 10 % Ex	ceptional Conditions:	%
	Maximum Period of Excess Opacity Allowe	ed:	min/hour
4.	Method of Compliance:		
	Annual VE Test EPA Method 9		
<u> </u>	77.11.72.1.1.0.		
5.	Visible Emissions Comment:		
■	-11.1. Eminion I imitation. Visible Emissi	Timitation 0 of 0	
VI	sible Emissions Limitation: Visible Emission	ons Limitation <u>Z</u> of <u>Z</u>	
	77 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2 5 : 0 411 11	<u> </u>
1.	Visible Emissions Subtype:	2. Basis for Allowable	
1.	VE99	2. Basis for Allowable ⊠ Rule	e Opacity:
3.	VE99 Allowable Opacity:	⊠ Rule	Other
3.	VE99 Allowable Opacity: Normal Conditions: % Ex	□ Rule ceptional Conditions:	Other 100 %
3.	Allowable Opacity: Normal Conditions: % Ex Maximum Period of Excess Opacity Allower	□ Rule ceptional Conditions:	Other
3.	Allowable Opacity: Normal Conditions: % Ex Maximum Period of Excess Opacity Allowe Method of Compliance:	□ Rule ceptional Conditions:	Other 100 %
	Allowable Opacity: Normal Conditions: % Ex Maximum Period of Excess Opacity Allower	□ Rule ceptional Conditions:	Other 100 %
4.	Allowable Opacity: Normal Conditions: % Ex Maximum Period of Excess Opacity Allowe Method of Compliance: None	□ Rule ceptional Conditions:	Other 100 %
	Allowable Opacity: Normal Conditions:	⊠ Rule ceptional Conditions:	☐ Other 100 % 60 min/hour
4.	Allowable Opacity: Normal Conditions: % Ex Maximum Period of Excess Opacity Allowe Method of Compliance: None	⊠ Rule ceptional Conditions:	☐ Other 100 % 60 min/hour
4.	Allowable Opacity: Normal Conditions:	⊠ Rule ceptional Conditions:	☐ Other 100 % 60 min/hour
4.	Allowable Opacity: Normal Conditions:	⊠ Rule ceptional Conditions:	☐ Other 100 % 60 min/hour
4.	Allowable Opacity: Normal Conditions:	⊠ Rule ceptional Conditions:	☐ Other 100 % 60 min/hour
4.	Allowable Opacity: Normal Conditions:	⊠ Rule ceptional Conditions:	☐ Other 100 % 60 min/hour

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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 2

1.	Parameter Code: EM	2.	Pollutant(s): NOx		
3.	CMS Requirement:	\boxtimes	Rule		
4.	Monitor Information Manufacturer: Siemens				
	Model Number: 300-CLD		Serial Number: 28J04015		
5.	Installation Date: Relocation to new stack December 2001	6.	Performance Specification Test Date: February 27, 2002		
7.	Continuous Monitor Comment: NO _x CEM proposed to meet requirements of	40 C	FR Part 75.		
Continuous Monitoring System: Continuous Monitor 2 of 2					
1.	Parameter Code: EM	2.	Pollutant(s): NO _x		
3.	CMS Requirement:	\boxtimes	Rule		
4.	Monitor Information Manufacturer: Siemens				
	Model Number: Oxymat 6E		Serial Number: N1K80365		
5.	Installation Date: December 2001	6.	Performance Specification Test Date: February 27, 2002		
7.	Continuous Monitor Comment: Monitor is an O ₂ analyzer for NO _x emissions	dete	rmination.		
			· .		
	, , , , , , , , , , , , , , , , , , ,				

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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) Attached, Document ID: Previously Submitted, Date		
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) Attached, Document ID: Previously Submitted, Date July 2008		
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) Attached, Document ID: Previously Submitted, Date July 2008		
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) Attached, Document ID: Previously Submitted, Date 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) Attached, Document ID: Previously Submitted, Date		
6.			
	☐ Previously Submitted, Date: Test Date(s)/Pollutant(s) Tested: ☐ To be Submitted, Date (if known): Test Date(s)/Pollutant(s) Tested:		
	Test Date(s)/Pollutant(s) Tested: 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: Attached, Document ID: Not Applicable		

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I. EMISSIONS UNIT ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Air Construction Permit Applications

1.	1. Control Technology Review and Analysis (Rules 62-212.400(10) and 62-212.500(7),				
	F.A.C.; 40 CFR 63.43(d) and (e)):	5731 (A 1' 11			
	Attached, Document ID:				
2.	Good Engineering Practice Stack Height	Analysis (Rules 62-212.400(4)(d) and 62-			
	212.500(4)(f), F.A.C.):	57 N . A . 1' . 1 .			
<u> </u>	Attached, Document ID:				
3.	Description of Stack Sampling Facilities: only)	(Required for proposed new stack sampling facilities			
	Attached, Document ID:	Not Applicable ■			
Ad	Additional Requirements for Title V Air Operation Permit Applications				
1.	Identification of Applicable Requirem Attached, Document ID:				
2.	Compliance Assurance Monitoring: Attached, Document ID:	☐ Not Applicable			
3.	Alternative Methods of Operation: Attached, Document ID:	☐ Not Applicable			
4.	4. Alternative Modes of Operation (Emissions Trading):				
	Attached, Document ID:	O /			
Ad	Iditional Requirements Comment				
į					
1					

DEP Form No. 62-210.900(1) Effective: 3/16/08 **PART II**

PART II

APPLICATION FOR MINOR SOURCE AIR CONSTRUCTION PERMIT FOR THE ADDITION OF LOW LOAD TURNDOWN SYSTEM FOR MCINTOSH UNIT 5 (EU ID 028)

EXECUTIVE SUMMARY

Lakeland Electric is seeking authorization from the Florida Department of Environmental Protection (FDEP) to install a Low Load Turndown (LLT) system on McIntosh Unit 5 (EU ID 028) to increase operational flexibility by allowing operation at lower loads (down to 25 percent) with reduced air emissions. The McIntosh, Jr. Power Plant is currently operating under Title V Operating Permit No. 1050004-023-AV. McIntosh Unit 5 is permitted to operate 8,760 hours per year (hrs/yr) and burn natural gas or distillate fuel oil with maximum 0.05-percent sulfur content. The LLT system is an upgraded combustion chamber design and control system developed by Siemens that allows operation at lower load down to 25 percent without greatly increasing emissions of carbon monoxide (CO) and volatile organic compounds (VOC). The operation of McIntosh Unit 5 for loads from 100 percent to 75 percent will not be affected by the LLT system. However, at loads of 50 percent to 25 percent, the emissions of CO and VOC will decrease from the current levels. Since there are no emissions increases, the proposed project is not a "modification" as defined in Rule 62-210.200(205), Florida Administrative Code (F.A.C.). As a result, a minor source air construction permit is being submitted for the project.

Golder Associates Inc. (Golder) was contracted to prepare the necessary air permit application seeking authorization to allow installation of the LLT system. The air permit application consists of the appropriate applications form [Part I; DEP Form 62-210.900(1)], a technical description of the project, and rule applicability for the project.

PROJECT DESCRIPTION

McIntosh Unit 5 is a combined-cycle combustion turbine (CT) permitted to operate 8,760 hrs/yr. CO and VOCs are controlled by good combustor design and an oxidation catalyst. When the CT is operating at base load (100 percent load), the combustion system operates at high-firing temperature, and CO are emissions that are reduced through oxidation to carbon dioxide (CO₂). At lower loads (less than 75 percent), when the firing temperature is lower, the CO oxidation is slower, which results in increased CO emissions. Based on Siemens-Westinghouse emissions performance data submitted with the initial air construction permit application for McIntosh Unit 5 in December, 1997, the CO emissions increase from 37 parts per million volume dry (ppmvd) [corrected at 15-percent oxygen (O₂)] at base load to 336 ppmvd at 50-percent load [for 59 degrees Fahrenheit (°F) ambient temperature]. An oxidation catalyst, designed with a minimum control efficiency of 90 percent is used to control CO emissions. The oxidation catalyst allows McIntosh Unit 5 to operate at lower loads with lower CO emissions.



The LLT system with improved combustion design will result in lower CO emissions at lower loads down to 25 percent. Therefore, the CO emissions with the LLT system and the oxidation catalyst are expected to decrease compared to current operation without the LLT system.

Similar to the CO emissions, the VOC emissions are also a result of incomplete thermal oxidation of hydrocarbons contained in the fuel and as a result, also increase during lower load operations. Based on Siemens data, the LLT system will also reduce VOC emissions during lower loads.

The LLT system works on the principle of improved combustion chamber design. Based on the Siemens paper "Low Load Operational Flexibility for Siemens G Class Gas Turbines" presented in Orlando, FL in December 2008, the design improvements include:

- Closed loop inlet guide vane control
- Bypassing compressed air around the combustor into the turbine to increase the fuel-to-air ratio inside the combustor
- Lowering of the rotor air cooler temperature

The design improvements result in higher firing temperature at lower loads, which results in improved CO to CO₂ conversion.

To evaluate the emissions performance of the LLT system, a comparison of the current emissions using previously submitted performance data was made with the emissions estimated using the LLT system. Table 1 presents this comparison. Data for the original combustor design was submitted as the design performance curves with the air construction permit application for McIntosh Unit 5 (Permit No. 1050004-004-AC/PSD-FL-245, application dated December 1997). These performance curves were the basis or the emission limits established for McIntosh Unit 5. In addition, additional information was provided to FDEP on low-load operation during the conversion of McIntosh Unit 5 as a simple cycle unit to a combined cycle unit. (see Siemens-Westinghouse letter to Lakeland Electric dated September 28, 2001, provided as Attachment A.) The low-load data indicated that for 20-percent load emissions data CO emissions are 4000 ppmvd and VOC emissions are 665 ppmvd. From these data, the CO and VOC emissions for 25-percent load using the current combustor system were estimated using a linear interpolation between the 20-percent load and the 50-percent load. As shown in Table 1, the CO and VOC emissions with the current combustor design is estimated to be 3,390 ppmvd and 564 ppmvd, respectively, at 25-percent load. With the LLT system, the CO emissions at 50 percent load will be reduced from 338 ppmvd for the original combustor to 14 ppmvd with the LLT system. At 25-percent load, the CO emissions will be reduced from an estimated 1,157 ppmvd for the original combustor to 490 ppmvd with the LLT system. Also shown in Table 1 are the mass CO emissions for the current combustor and the LLT system. As shown in the table, the mass CO emissions for the LLT system at 25-percent load [1,157 pounds per hour (lb/hr)] is lower than the mass CO emissions for the current combustor at 50



percent load (1,177 lb/hr). CO emissions are further reduced by 90 percent with the oxidation catalyst from the values shown in the table.

The performance of the LLT system from 50- to 25-percent load for VOC emissions is similar to CO. With the LLT system, the VOC emissions at 50-percent load will be reduced from 58 ppmvd for the original combustor to 0.5 ppmvd with the LLT system. At 25-percent load, the VOC emissions will be reduced from an estimated 564 ppmvd for the original combustor to 28 ppmvd with the LLT system. Also shown in Table 1 are the mass VOC emissions for the current combustor and the LLT system. As shown in the table, the mass VOC emissions for the LLT system at 25-percent load (66 lb/hr) is lower than the mass VOC emissions for the current combustor at 50-percent load (115 lb/hr). VOC emissions are further reduced with the oxidation catalyst from the values shown in the table.

It should also be noted that the LLT system is expected to reduce CO and VOC emissions from 100 percent load to 50 percent load. This will result in lower emissions over the entire operating spectrum for McIntosh Unit 5.

In order to evaluate the potential influence of the LTT system on annual emissions, the emissions profiles for the existing performance curves in Table 1 were used to develop emission profiles over the operating range of the current combustion system and the LLT system. These emission profiles were developed using the curve fitting routine in Excel. The emission profiles were used to calculate daily CO and VOC emissions based on the average operating load. The daily operating load was developed using continuous emission monitoring system (CEMS) data required pursuant to 40 CFR Part 75 and reported to FDEP/ the U.S. Environmental Protection Agency (EPA) to meet the requirements of Acid Rain CEMS. The daily operating load was used in the equations developed for the emissions profile and summed to developed annual emissions. The most recent years, 2008 and 2009, were used to estimate annual CO and VOC emissions for the comparison. The following figures and tables are attached showing the calculations:

- Figure 1 CO and VOC Emission Profiles for the Current Combustion System and the LLT System
- Table 2 Calculated Daily CO Emissions for 2009 Using the Current Combustion System and Using LLT System
- Table 3 Calculated Daily CO Emissions for 2008 Using the Current Combustion System and Using LLT System
- Table 4 Calculated Daily VOC Emissions for 2009 Using the Current Combustion System and Using LLT System
- Table 5 Calculated Daily VOC Emissions for 2008 Using the Current Combustion System and Using LLT System



Table 6 shows the results of the calculated 2009 and 2008 annual emissions for CO and VOC using the current combustion system and the LLT system. As shown in this comparison the CO and VOC emission with the LLT system is calculated to decrease by over 80 and 90 percent, respectively.

Unlike CO and VOC, emissions of nitrogen oxides (NO_X) , sulfur dioxide (SO_2) , particulate matter less than 10 microns (PM_{10}) , and particulate matter less than 2.5 microns $(PM_{2.5})$ decrease with lower loads. Therefore, emissions of these pollutants will not increase as a result of the LLT system operating at lower loads. Based on Siemens data, the LLT system is not active above approximately 97-percent CT load. The Siemens data on the estimated emissions with the LLT system presented in Table 1 are based on natural gas firing, which is the primary fuel used in McIntosh Unit 5. The current CO emissions limit of 2 ppmvd (corrected at 15-percent O_2) at full load applies to natural gas firing only.

RULE APPLICABILITY

Under federal and State of Florida prevention of significant deterioration (PSD) review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. EPA has approved Florida's State Implementation Plan (SIP), which contains PSD regulations. The applicable PSD rules in Florida are found at Rule 62-212.400, F.A.C.

A "major facility" is defined as any 1 of 28 named source categories that have the potential to emit 100 tons per year (TPY) or more, or any other stationary facility that has the potential to emit 250 TPY or more, of any pollutant regulated under the CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions for any CAA-regulated air pollutant due to the modification is greater than the PSD significant emission rates defined in 40 CFR Part 52.21(b)(23). If subject to PSD review, a PSD air construction permit is required for the project, which is required to undergo other analyses such as control technology review, air quality impact analysis, etc. If the net increase in emissions for any CAA-regulated air pollutant is smaller than the PSD significant emission rates, then a minor source air construction permit is required for the project.

The McIntosh Power Plant facility is a major facility under FDEP rules. Based on Rule 62-210.200(205), F.A.C., modification is defined as any physical change in, change in the method of operation of, or addition to a facility which would result in an increase in the actual emissions of any pollutant subject to new source review regulation under the CAA. The addition of the LLT system will be a physical change. However, CO and VOC emissions are estimated to decrease over the entire operating spectrum and the estimated annual emission over the operating spectrum are substantially reduced using the LLT system. Indeed, the mass CO and VOC emissions of the LLT system at 25-percent load are lower than the mass



CO and VOC emissions at 50-percent load. As a result, there will not be any increase in emissions. In fact based on the comparison shown in Table 1, there will be a decrease in the CO and VOC emissions. Therefore, the proposed project is not a modification as defined under the FDEP rules.



TABLES

TABLE 1
COMPARISON OF LOW-LOAD TURNDOWN SYSTEM EMISSIONS WITH CURRENT COMBUSTION SYSTEM EMISSIONS

Load		Carbon Me	onoxide (CO)		Vola	tile Organic	Compounds (VOC)	
(%)	Low Load Turne	down ^a	Current Combustio	n System ^b	Low Load Turne	down ^a	Current Combustion	n System ^t
	(ppmvd @ 15% O ₂)	(lb/hr)	(ppmvd @ 15% O ₂)	(lb/hr)	(ppmvd @ 15% O ₂)	(lb/hr)	(ppmvd @ 15% O ₂)	(lb/hr)
100	1	4	37	211	0.0	0	3	10
75	9	31	71	336	0.2	0.6	3	8
50	14	55	338	1,177	0.5	2	58	115
25	490	1,157	3,390	10,903	28	66	564	1,090

^a Estimated emissions with Low Load Turndown are based on Siemens data.

Checked	by:	
Reviewed	by:	



b 100, 75, and 50% load data based on Siemens performance data (Permit No. 1050004-004-AC/PSD-FL-245 dated December 8, 1997).

25% load data is based on Siemens letter dated September 28, 2001 (see Attachment B for copy) for 20% load, which was used to interpolate the 25% load ppmv. Mass emissions (lb/hr) at 25% load was estimated using the equation of the linear trendline through the available data points at 50-, 75-, and 100-percent loads (see Figure 1).

TABLE 2
2009 CO Emissions Based on Load Varying Emissions Profile

		2009 CE	M Data		Using Current Con	nbustion Syste	m Emissions Profile	Using	LLT Emiss	sions Profile
	Operating Hours	Daily Heat Input	Heat Input Rate	Load	Uncontro	lled CO ^a	Controlled CO ^b	Uncontro	Med COc	Controlled CO ^t
Day	(hrs/day)	(MMBtu/yr)	(MMBtu/hr)	(%)	(lb/hr)	(lb/day)	(lb/day)	(lb/hr)	(lb/day)	(lb/day)
01/20/2009	11.5	13,739	1,192	53.3	1,095	12,626	1,263	62	3,311	331
01/21/2009 01/22/2009	24.0 24.0	41,016 41,064	1,709 1,711	76.4 76.5	382 381	9,168 9,137	917 914	16 16	1,197 1,193	120 119
01/23/2009	10.5	17,226	1,645	73.6	427	4,469	447	18	1,133	133
01/27/2009	23.3	38,584	1,658	74.2	417	9,710	971	18	1,304	130
02/04/2009	13.3	. 12,720	958	42.8	2,072	27,513	2,751	143	6,128	613
02/05/2009 02/06/2009	24.0 15.6	40,588 27,331	1,691 1,752	75.6 78.4	394 355	9,454 5,542	945 554	16 14	1,233 1,116	123 112
02/20/2009	13.0	17,614	1,355	60.6	753	9,783	978	38	2,304	230
02/21/2009	24.0	43,590	1,816	81.2	320	7,675	768	12	1,008	101
02/22/2009	24.0	44,117	1,838	82.2	309	7,411	741	12	975	97
02/23/2009 02/24/2009	24.0 24.0	46,885 48,275	1,954 2,011	87. 4 90.0	259 237	6,204 5,697	620 570	9 8	821 756	82 76
02/25/2009	24.0	44,941	1,873	83.7	293	7,021	702	11	925	93
2/26/2009	24.0	44,345	1,848	82.6	304	7,300	730	12	961	96
2/27/2009	24.0	46,029	1,918	85.8	273	6,547	655	10	865	86
2/28/2009 3/01/2009	24.0 24.0	46,564 45,112	1,940 1,880	86.8 84.1	264 289	6,330 6,943	633 694	10 11	837 915	84 92
3/02/2009	24.0	50,609	2,109	94.3	207	4,963	496	7	662	66
03/03/2009	24.0	49,003	2,042	91.3	227	5,453	545	8	725	72
3/04/2009	24.0	47,650	1,985	88.8	247	5,918	592	9	785	78
03/05/2009	24.0	48,950	2,040	91.2	228	5,470	547	8	727	73
)3/06/2009)3/07/2009	24.0 24.0	48,082 46,368	2,003 1,932	89.6 86.4	240 267	5,764 6,409	576 641	9 10	765 847	76 85
3/08/2009	24.0	48,246 ·	2,010	89.9	238	5,707	571	8	757	76
3/09/2009	24.0	47,708	1,988	88.9	246	5,897	590	9	782	78
3/10/2009	24.0	44,525	1,855	83.0	301	7,214	721	11	950	95
)3/11/2009)3/12/2009	24.0 24.0	46,546 48,750	1,939 2,031	86.7 90.8	264 231	6,337 5,536	634 554	10 8	838 736	84 74
3/12/2009	24.0 24.0	48,750 47,269	2,031 1,970	90.8 88.1	251 252	5,536 6,058	554 606	8 9	802	74 80
3/14/2009	24.0	44,177	1,841	82.3	308	7,381	738	12	971	97
3/15/2009	24.0	43,371	1,807	80.8	325	7,789	779	13	1,023	102
3/16/2009	24.0	45,600	1,900	85.0	280	6,729	673	10	888	89
)3/17/2009)3/18/2009	24.0 24.0	45,680 46,257	1,903 1,927	85.1 86:2	279 269	6,694 6,453	669 645	10 10	884 853	88 85
3/19/2009	24.0	46,131	1,922	86.0	209 271	6,505	651	10	860	. 86
3/20/2009	24.0	47,371	1,974	88.3	251	6,020	602	9	798	80
3/21/2009	24.0	45,635	1,901	85.0	280	6,714	671	10	886	89
3/22/2009	24.0	47,147	1,964	87.9	254	6,104	610	9	808	81
3/23/2009 3/24/2009	24.0 24.0	45,007 46,411	1,875 1,934	83.9 86.5	291 266	6,991 6,391	699 639	11 10	921 845	92 84
3/25/2009	24.0	45,929	1,914	85.6	275	6,589	659	10	870	87
3/26/2009	24.0	44,914	1,871	83.7	293	7,033	703	11	927	93
3/27/2009	24.0	45,246	1,885	84.3	287	6,884	688	11	908	91
03/28/2009	24.0	44,586	1,858 1,706	83.1	299 384	7,185	719 645	11 16	946	95 432
03/29/2009 03/30/2009	16.8 24.0	28,659 47,193	1,966	76.3 87.9	254	6,452 6,087	609	9	1,203 806	120 81
03/31/2009	24.0	46,585	1,941	86.8	263	6,322	632	10	836	84
04/01/2009	24.0	47,161	1,965	87.9	254	6,099	610	9	808	81
04/02/2009	24.0	46,770	1,949	87.2	260	6,249	625	9	827	83
04/03/2009 04/04/2009	24.0 24.0	47,659 49,998	. 1,986 2,083	88.8 93.2	246 214	5,915 5,142	591 514	9 7	784 685	78 68
04/05/2009	24.0	49,565	2,065	92.4	220	5,275	527	8	702	70
04/06/2009	24.0	48,406	2,017	90.2	235	5,652	565	8	750	75
4/07/2009	24.0	48,139	2,006	89.7	239	5,744	574	8	762	76
4/08/2009	21.3	44,212 30,135	2,076 1,780	92.8 79.6	217 339	4,613 5,743	461 574	7 13	692 1.067	69 107
14/09/2009 14/10/2009	16.9 24.0	46,664	1,760	79.0 87.0	262	6,290	574 629	10	1,067 832	83
4/11/2009	24.0	46,506	1,938	86.7	265	6,353	635	10	840	84
4/12/2009	24.0	46,560	1,940	86.8	264	6,331	633	10	837	84
4/13/2009	24.0	48,097 48,603	2,004	89.6	240	5,759 5,556	576 556	9	764 738	76
)4/14/2009)4/15/2009	24.0 24.0	48,692 46,482	2,029 1,937	90.7 86.6	231 265	5,556 6,362	556 636	8 10	738 841	74 84
04/16/2009	24.0	45,529	1,897	84.8	282	6,760	676	11	892	89
4/17/2009	24.0	46,239	1,927	86.2	269	6,461	646	10	854	85
4/18/2009	24.0	45,379	1,891	84.6	284	6,825 6,773	682 677	11	900	90
4/19/2009 4/20/2009	24.0 24.0	45,498 45,246	1,896 1,885	84.8 84.3	282 287	6,773 6,884	677 688	11 11	894 908	89 91
14/20/2009 14/21/2009	24.0 24.0	45,246 47,807	1,865 1,992	89.1	267 244	5,861	586	9	906 777	78
4/22/2009	24.0	44,084	1,837	82.1	309	7,427	743	12	977	98
4/23/2009	24.0	39,066	1,628	72.8	440	10,570	1,057	19	1,374	137
4/24/2009	24.0	46,711	1,946	87.0	261	6,272	627	10	830	83
4/25/2009 4/26/2009	24.0 24.0	45,030 45,380	1,876 1,891	83.9 84.6	291 284	6,980 6,824	698 682	11 11	920 900	92 90
4/27/2009	24.0	46,054	1,919	85.8	272	6,537	654	10	864	86
4/28/2009	24.0	45,603	1,900	85.0	280	6,727	673	10	888	89
4/29/2009	24.0	46,047	1,919	85.8	272	6,540	654	10	864	86
4/30/2009 5/01/2009	24.0 24.0	47,868 44,449	1,995 1,852	89.2 82.8	243 302	5,839 7,250	584 725	9 12	774 954	77 95
5/01/2009	24.0 24.0	44,449 45,822	1,852	82.8 85.4	276	6,634	663	10	95 4 876	88
5/03/2009	24.0	45,139	1,881	84.1	289	6,932	693	11	914	91
05/04/2009	24.0	47,167	1,965	87.9	254	6,097	610	9	807	81
05/05/2009	24.0	46,271	1,928	86.2	269	6,448	645	10	852 775	85 77
5/06/2009	24.0 24.0	47,859 47,713	1,994 1,988	89.2 88.9	243 246	5,843 5,895	584 590	9 9	775 782	77 78
05/07/2009 05/08/2009	24.0 24.0	47,713 46,863	1,953	87.3	2 40 259	6,213	621	9	822	76 82
5/09/2009	24.0	44,614	1,859	83.1	299	7,172	717	11	945	94
5/10/2009	24.0	42,882	1,787	79.9	335	8,051	805	13	1,056	106
05/11/2009	24.0	44,277	1,845 1,776	82.5	306 341	7,333 8 105	733 810	12 14	965 1.074	96 107
05/12/2009 05/13/2009	24.0 24.0	42,623 43,585	1,776 1,816	79.4 81.2	341 320	8,195 7,678	819 768	14 12	1,074 1,009	107 101
05/13/2009	24.0 24.0	43,505 43,501	1,813	81.1	322	7,721	772	13	1,009	101
UD/ 14/2UUM		42,212	1,759	78.7	351	8,430	843	14	1,104	110



TABLE 2
2009 CO Emissions Based on Load Varying Emissions Profile

-		2009 CE			Using Current Co	mbustion Syste	m Emissions Profile	Using	LLT Emiss	sions Profile
	Operating Hours	Daily Heat Input	Heat Input Rate	Load	Uncontr	olled CO ^a	Controlled CO ^b	Uncontr	olled CO ^c	Controlled CC
Day	(hrs/day)	(MMBtu/yr)	(MMBtu/hr)	(%)	(lb/hr)	(lb/day)	 (lb/day)	(lb/hr)	(lb/day)	(lb/day)
5/16/2009	24.0	43,767	1,824	81.6	316	7,585	758	12	997	100
5/17/2009	24.0	43,806	1,825	81.6	315	7,565	757	12	995	99
5/18/2009	24.0	40,599	1,692	75.7	394	9,446	945	16	1,232	123
5/19/2009	24.0 24.0	41,880 44,419	1,745 1,851	78.0 82.8	359 303	8,627 7,264	863 726	14	1,129	113 96
5/20/2009 5/21/2009	24.0	45,684	1,904	85.1	279	6,692	669	12 10	956 883	88
5/22/2009	24.0	46,411	1,934	86.5	266	6,391	639	10	845	85
5/23/2009	24.0	44,643	1,860	83.2	298	7,159	716	11	943	94
5/24/2009	24.0	41,521	1,730	77.4	369	8,847	885	15	1,157	116
5/25/2009	24.0	42,347	1,764	78.9	348	8,352	835	14	1,094	109
5/26/2009 5/27/2009	24.0 24.0	43,575 43,988	1,816 1,833	81.2 82.0	320 311	7,683 7,474	768 747	12 12	1,009 983	101 98
5/28/2009	24.0	42,337	1,764	78.9	348	8,358	836	14	1,095	109
5/29/2009	19.2	33,346	1,740	77.8	363	6,954	695	15	1,139	114
5/30/2009	24.0	42,764	1,782	79.7	338	8,116	812	13	1,064	106
5/31/2009	22.8	37,067	1,628	72.8	440	10,025	1,002	19	1,373	137
6/01/2009 6/02/2009	17.4 24.0	30,040 40,991	1,728 1,708	77.3 76.4	370 383	6,424 9,185	642 918	15 16	1,160 1,199	116 120
6/03/2009	24.0	41,580	1,733	77.5	367	8,810	881	15	1,152	120 115
6/04/2009	24.0	39,503	1,646	73.6	426	10,232	1,023	18	1,331	133
6/05/2009	24.0	40,278	1,678	75.1	403	9,667	967	17	1,260	126
6/06/2009	24.0	40,851	1,702	76.1	387	9,277	928	16	1,211	121
6/07/2009	24.0	35,706	1,488	66.5	573	13,744	1,374	27	1,770	177
6/08/2009	24.0	39,375 39,306	1,641	73.4 78.2	430 357	10,329	1,033	18 14	1,343	134 112
6/09/2009 6/10/2009	22.5 16.8	39,306 29,908	1,748 1,786	78.2 79.9	357 336	8,033 5,630	803 563	14 13	1,123 1,058	112 106
6/11/2009	24.0	48,069	2,003	89.6	240	5,768	577	9	765	77
6/12/2009	24.0	45,150	1,881	84.1	289	6,926	693	11	913	91
6/13/2009	24.0	43,763	1,823	81.5	316	7,587	759	12	997	100
6/14/2009	24.0	39,910	1,663	74.4	414	9,930	993	17	1,293	129
6/15/2009 6/16/2009	21.4 17.9	34,800 30,153	1,624 1,683	72.6 75.3	443	9,504 7,163	950 716	19 17	1,383 1,251	138 135
6/16/2009	17.9 24.0	30,153 40,649	1,683 1,694	75.3 75.7	400 392	7,163 9,412	716 941	17 16	1,251	125 123
6/18/2009	18.8	27,053	1,441	64.4	629	11,817	1,182	30	1,939	194
6/19/2009	17.2	28,864	1,676	75.0	404	6,961	696	17	1,265	126
6/20/2009	24.0	41,311	1,721	77.0	374	8,978	898	15	1,173	117
6/21/2009	24.0	40,745	1,698	75.9	389	9,347	935	16	1,220	122
6/22/2009	22.7	39,881	1,761	78.7	350	7,931	793	14	1,101	110
6/23/2009 6/24/2009	17.8 24.0	28,569 39,649	1,608 1,652	71.9 73.9	457 422	8,114 10,122	811 1,012	20	1,422 1,317	142 132
6/25/2009	17.9	25,341	1,413	63.2	666	11,953	1,012 1,195	18 · 32	2,049	205
6/26/2009	4.9	4,608	940	42.1	2,186	10,712	1,071	153	6,455	645
6/27/2009	20.1	29,416	1,466	65.5	598	12,006	1,201	28	1,846	185
6/28/2009	23.7	37,857	1,596	71.4	466	11,064	1,106	20	1,452	145
6/29/2009	17.1	29,256	1,711	76.5	381	6,511	651	16	1,194	119
6/30/2009	24.0	36,118 40,143	1,505 1,673	67.3 74.8	554 407	13,291 9,762	1,329	25 47	1,714	171
7/01/2009 7/02/2009	24.0 24.0	40,143	1,707	74.6 76.3	383	9,762 9,202	976 920	17 16	1,272 1,202	127 120
7/03/2009	24.0	42,370	1,765	79.0	347	8,339	834	14	1,092	109
7/04/2009	24.0	43,349	1,806	80.8	325	7,800	780	13	1,024	102
7/05/2009	24.0	43,539	1,814	81.1	321	7,702	770	12	1,012	101
7/06/2009	24.0	44,541	1,856	83.0	300	7,206	721	11	949	95
7/07/2009	24.0	42,856	1,786	79.9	336	8,066	807	13	1,058	106
7/08/2009 7/09/2009	24.0 24.0	43,582 44,044	1,816 1,835	81.2 82.1	320 310	7,679 7,446	768 745	12 12	1,009 979	101 98
7/10/2009	24.0	45,689	1,904	85.1	279	6,690	669	10	883	88
7/11/2009	24.0	44,971	1,874	83.8	292	7,007	701	11	924	92
7/12/2009	24.0	44,744	1,864	83.4	296	7,111	711	11	937	94
7/13/2009	24.0	44,026	1,834	82.0	311	7,456	746	12	981	98
7/14/2009	24.0	45,135	1,881	84.1	289 273	6,933	693 654	11 10	914	91 86
7/15/2009 7/16/2009	24.0 24.0	46,051 46,380	1,919 1,932	85.8 86.4	272 267	6,538 6,404	654 640	10 10	864 847	86 85
7/16/2009 7/17/2009	24.0 24.0	40,380 42,818	1,784	79.8	337	8,086	809	13	1,061	106
7/18/2009	24.0	38,771	1,615	72.2	450	10,806	1,081	19	1,403	140
7/19/2009	24.0	37,632	1,568	70.1	491	11,789	1,179	22	1,526	153
7/20/2009	21.2	34,170	1,613	72.2	452	9,573	957	20	1,408	141
7/21/2009 7/22/2009	16.2 24.0	27,634 44,081	.1,706 1,837	76.3 82.1	384 310	6,223 7,428	622 743	16 12	1,204	120
7/22/2009 7/23/2009	24.0 24.0	44,081 42,526	1,837	82.1 79.2	310 344	7,428 8,250	743 825	12 14	977 1,081	98 108
7/24/2009	24.0	41,900	1,746	78.1	359	8,615	861	14	1,127	113
7/25/2009	22.5	37,814	1,679	75.1	402	9,057	906	17	1,258	126
7/27/2009	16.9	29,307	1,731	77.4	368	6,229	623	15	1,155	115
7/28/2009	24.0	44,280	1,845	82.5	305	7,331	733	12	965	96
7/29/2009	24.0	44,750 25,024	1,865	83.4	296	7,109	711	11	936	94
7/30/2009 7/31/2009	16.0 24.0	25,021 46,428	1,564 1,934	69.9 86.5	495 266	7,921 6,384	792 638	22 10	1,538 844	154 84
3/01/2009 3/01/2009	24.0 24.0	46,426 46,279	1,934	86.2	269	6,384 6,444	644	10	844 852	85
3/02/2009	24.0	46,129	1,922	86.0	271	6,506	651	10	860	86
3/03/2009	24.0	45,627	1,901	85.0	280	6,717	672	10	887	89
8/04/2009	24.0	43,775	1,824	81.6	316	7,581	758	12	997	100
8/05/2009	24.0	39,862	1,661	74.3	415	9,965	996	17	1,298	130
8/06/2009	24.0	40,734	1,697	75.9	390	9,355	935	16 15	1,221	122
8/07/2009	23.6 16.6	40,862 26,916	1,734 1,618	77.5 72.4	366 448	8,635 7,447	864 745	15 10	1,150 1,396	115 140
8/08/2009 8/09/2009	16.6 24.0	26,916 41,738	1,618 1,739	72.4 77.8	363	7,447 8,713	745 871	19 15	1,396	140 114
8/10/2009	23.3	43,538	1,873	83.7	293	6,713 6,801	680	11	925	93
8/11/2009	17.0	29,791	1,752	78.4	355	6,035	604	14	1,116	112
8/12/2009	24.0	41,618	1,734	77.6	366	8,786	879	15	1,149	115 ়
8/13/2009	22.8	37,319	1,638	73.3	432	9,846 9,238	985	. 18	1,349	135
8/14/2009	17.6	26,874	1,531	68.5	526		924	24	1,632	163



TABLE 2 2009 CO Emissions Based on Load Varying Emissions Profile

Page	_		2:009 CE			Using Current C	ombustion Syste	m Emissions Profile	Using	LLT Emiss	sions Profile
CHIPTED 24.0 39-181 1.523 73.0 437 10.479 1.044 59 1.522 10.0017/2009 2.4 31.522 1.502 69-4 50.00 2.148 1.215 2.2 1.502 69-180 69-		Operating Hours	Daily Heat Input	Heat Input Rate	Load	Uncont	rolled CO ^a	Controlled CO ^b	Uncontr	olled CO°	Controlled CO
08H732009 24.0 37.247 1,652 89.4 59.6 12,148 1,215 23 1,571 15 08H732009 15.5 2,3.83 1,449 48.8 14.8 1,000 11.0 11.0 11.0 11.0 11.0 11.0 11.	Day	(hrs/day)	(MMBtu/yr)	(MMBtu/hr)	(%)	(lb/hr)	(lb/day)	(lb/day)	(lb/hr)	(lb/day)	(lb/day)
88H82009 16.5 23.83 1.78 78.5 34.0 1.81 10.172 1.906 19.88 1.81 1.87 1.81 1.81 1.81 1.87 1.81											136
08H900099 24 0 42.884 1,778 79.5 340 8.161 818 13 1,070 10 080200099 23 4 40,22 1 1,747 78.1 3.568 8.386 838 14 1,125 11 080210009 15.2 2,138.5 1 1,747 78.1 3.568 8.386 838 14 1,125 11 080210009 15.2 2,138.5 1 1,747 78.1 3.568 8.386 838 14 1,125 11 080210009 17.0 28,748 1,742 13.2 3 1,742 1								1,215			157
08/20/2009 23.4 40,921 1,747 76.1 358 8,386 639 14 1,125 11 11 12 12											191
08/21/2009 16.9 25.383 1,488 67.0 561 9.500 950 26 1,736 17.087 1.087											107
082222009 24 0 38,697 1,612 72 1 453 10,867 1,057 20 1,411 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1											112
082730009											174
BRAYARODS 17.0											141
08/25/2009											135
08/08/2009 2 27 37.807 1.888 74 6 410 9.301 930 17 1,283 12 08 08 08 08 08 08 12 1,283 12 1 08 08 08 08 12 1 1,283 12 1 1,080 76 0 389 6.488 649 16 1,218 12 12 12 12 12 12 12 12 12 12 12 12 12										1,233	123
08272009 16.7 20.331 1.698 76.0 389 6.488 6.49 16 1.216 12 12 12 12 12 12 12											100
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09/10/2009	09/08/2009	17.8	31,747	1,789	80.0	334	5,937	594	13	1,053	105
090112/2009 24.0 43,326 1,930 86.3 268 6,425 643 10 849 8 09012/2009 24.0 41,894 1,746 78.1 359 8,619 862 14 1,128 11 09014/2009 24.0 44,874 1,895 84.7 283 6,783 678 11 895 81 09015/2009 24.0 42,145 1,756 78.5 353 8,470 847 14 1,109 11 09015/2009 24.0 44,757 1,865 83.4 296 7,105 711 11 938 90 09017/2009 24.0 44,767 1,861 83.2 298 7,146 715 11 941 938 90 09017/2009 24.0 44,670 1,861 83.2 298 7,146 715 11 941 90 09018/2009 24.0 44,670 1,861 83.2 298 7,146 715 11 941 90 09018/2009 24.0 44,771 1,782 79.7 338 8,112 811 13 10,64 19 09018/2009 25.6 33,842 1,636 73.2 434 10,250 1,025 19 1,354 13 09018/2009 24.0 42,771 1,782 79.7 338 8,112 811 13 10,64 19 09018/2009 24.0 42,771 1,782 79.7 338 8,112 819 14 1,073 11 09021/2009 24.0 42,737 1,777 79.5 341 8,187 819 14 1,073 11 09021/2009 24.0 42,709 1,760 79.6 339 8,147 815 13 1,068 10 09022/2009 24.0 44,395 1,850 82.7 303 7,276 726 12 968 9 09024/2009 24.0 44,573 1,732 77.5 367 8,144 881 15 1,153 19 09024/2009 24.0 44,573 1,732 77.5 367 8,148 881 15 1,153 19 09024/2009 24.0 44,573 1,732 77.5 367 8,148 881 15 1,153 19 09024/2009 24.0 37,750 1,811 81.0 323 6,730 673 13 1,017 11 09022/2009 24.0 42,750 1,781 810 323 6,730 673 13 1,017 11 09022/2009 24.0 42,750 1,781 810 323 6,730 673 13 1,017 11 09022/2009 24.0 42,750 1,781 79.7 338 8,124 812 13 1,065 11 09022/2009 24.0 42,750 1,781 79.7 338 8,124 812 13 1,065 11 09022/2009 24.0 42,750 1,781 79.7 38 8,124 812 13 1,065 11 09022/2009 24.0 42,750 1,781 79.7 38 8,124 812 13 1,065 11 09022/2009 24.0 42,750 1,781 79.7 38 8,124 812 13 1,065 11 09022/2009 24.0 42,750 1,781 79.7 38 8,147 81 81 94 94 94 94 94 94 94 94 94 94 94 94 94	09/09/2009	24.0	44,885	1,870	83.6	294	7,047	705	11	929	93
09/12/2009 24.0 45.216 1.884 84.3 287 6.897 690 11 909 9 9 09/13/2009 24.0 41.894 1.746 78.1 359 8.619 862 14 1.128 11 909/14/2009 24.0 45.747 1.895 84.7 283 6.783 678 11 895 9 909/13/2009 24.0 44.757 1.865 83.4 296 7.105 711 11 936 9 909/13/2009 24.0 44.757 1.865 83.4 296 7.105 711 11 936 9 909/13/2009 24.0 44.757 1.865 83.4 296 7.105 711 11 936 9 909/13/2009 24.0 44.757 1.865 83.4 296 7.105 711 11 936 9 909/13/2009 24.0 47.771 1.782 79.7 338 8.112 811 13 1.064 11 991/13/2009 24.0 47.771 1.782 79.7 338 8.112 811 13 1.064 11 991/13/2009 23.6 33.642 1.536 73.2 43.4 10.250 1.025 19 1.354 11 992/13/2009 24.0 42.771 1.782 79.7 338 8.112 811 13 1.064 11 992/13/2009 24.0 42.837 1.777 79.5 341 8.187 819 14 1.073 11 492/13/2009 24.0 42.837 1.777 79.5 341 8.187 819 14 1.073 11 4092/13/2009 24.0 44.535 1.560 82.7 303 7.276 72.8 12 988 909/23/2009 24.0 44.573 1.732 77.5 367 8.814 881 15 13 1.066 10 909/23/2009 24.0 44.573 1.732 77.5 367 8.814 881 15 13 1.060 11 909/23/2009 24.0 44.573 1.732 77.5 367 8.814 881 15 1.153 11 909/28/2009 21.6 37.678 1.744 78.0 360 7.772 777 14 1.130 11 909/28/2009 20.9 37.750 1.811 81.0 323 6.730 673 13 1.017 11 994 909/28/2009 24.0 44.778 1.865 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.778 1.865 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.778 1.865 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.778 1.865 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.778 1.865 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.778 1.864 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.778 1.864 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.778 1.864 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.778 1.864 82.5 306 7.332 733 12 965 909/28/2009 24.0 44.786 1.789 8.88 9.98 9.98 9.98 9.98 9.98 9.98	09/10/2009	24.0	46,622	1,943	86.9	263	6,307	631	10	834	83
09/12/2009 24.0 43,216 1,884 84.3 287 6,897 690 11 909 9 9 09/13/2009 24.0 41,894 1,746 78.1 359 8,619 862 14 1,128 11 895 90/13/2009 24.0 44,747 1,895 84.7 283 6,783 678 11 895 90/13/2009 24.0 44,757 1,865 83.4 296 7,105 711 11 938 90/13/2009 24.0 44,757 1,865 83.4 296 7,105 711 11 938 90/13/2009 24.0 44,757 1,865 83.4 296 7,105 711 11 938 90/13/2009 24.0 44,777 1,782 79.7 338 8,112 811 13 1,064 11 90/13/2009 24.0 42,771 1,782 79.7 338 8,112 811 13 1,064 11 90/13/2009 24.0 42,771 1,782 79.7 338 8,112 811 13 1,064 11 90/13/2009 23.6 33.642 1,535 73.2 43.4 10,250 19.2 11,471 14.0 98/13/2009 24.0 42,737 1,777 79.5 341 8,187 819 14 1,073 10.0 98/21/2009 24.0 42,783 1,777 79.5 341 8,187 819 14 1,073 10.0 98/21/2009 24.0 42,837 1,777 79.5 341 8,187 819 14 1,073 10.0 98/21/2009 24.0 42,837 1,777 79.5 341 8,187 815 13 1,068 10.0 98/21/2009 24.0 44,385 1,850 82.7 303 7,276 728 12 998 99/21/2009 24.0 44,573 1,732 77.5 367 8,814 881 15 13 1,068 10.0 98/21/2009 24.0 44,573 1,732 77.5 367 8,814 881 15 1,153 11 99/22/2009 21.6 37,676 1,744 78.0 360 7,772 777 14 1,130 11 99/22/2009 21.6 37,676 1,744 78.0 360 7,772 777 14 1,130 11 99/22/2009 20.9 37,750 1,811 81.0 323 6,730 673 13 1,017 10.0 99/22/2009 24.0 44,278 1,864 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,845 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,845 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 7,332 733 12 965 90/22/2009 24.0 44,278 1,846 82.5 306 83 3 297 7,147 71 71 11 11 93.0 11 10/22/2	09/11/2009	24.0	46,326	1,930	86.3	268	6,425	643	10	849	85
9.9/13/2009 24.0 41,894 1,746 78.1 359 8,619 862 14 1,128 11 9.9/13/2009 24.0 42,145 1,756 78.5 353 8,470 847 14 1,109 11 9.9/13/2009 24.0 42,145 1,756 78.5 353 8,470 847 14 1,109 11 9.9/13/2009 24.0 44,757 1,865 83.4 296 7,105 711 11 19 386 99 9.0/13/2009 24.0 44,757 1,865 83.4 296 7,105 711 11 19 396 99 9.0/13/2009 24.0 44,870 1,861 83.2 298 7,146 715 11 941 99 9.0/13/2009 24.0 24,771 1,782 79.7 338 8,112 811 13 10,64 19 9.0/13/2009 25.6 33,842 1,636 73.2 434 10,250 1,025 19 1,354 13 9.0/13/2009 24.0 42,737 1,777 79.5 341 8,187 819 14 1,073 11 9.0/21/2009 24.0 42,709 1,780 79.6 339 8,147 815 13 1,068 10 9.0/21/2009 24.0 44,709 1,780 79.6 339 8,147 815 13 1,068 99 9.0/21/2009 24.0 44,395 1,850 82.7 303 7,276 728 12 988 99 9.0/21/2009 24.0 44,395 1,850 82.7 303 7,276 728 12 988 99 9.0/21/2009 24.0 44,573 1,732 77.5 367 8,144 881 15 1,153 11 9.0/21/2009 24.0 44,573 1,732 77.5 367 8,144 881 15 1,153 11 9.0/21/2009 24.0 44,573 1,732 77.5 367 8,144 881 15 1,153 11 9.0/21/2009 24.0 44,575 1,732 77.5 367 8,144 881 15 1,153 11 9.0/21/2009 24.0 44,575 1,732 77.5 367 8,144 881 15 1,153 11 9.0/21/2009 29.9 37,750 1,811 81.0 323 6,730 673 13 1,017 14 9.0/21/2009 29.9 37,750 1,811 81.0 323 6,730 673 13 1,017 14 9.0/21/2009 29.9 37,750 1,811 81.0 323 6,730 673 13 1,017 14 9.0/21/2009 20.9 37,750 1,811 81.0 323 6,730 673 13 1,017 14 9.0/21/2009 20.9 44,278 1,846 82.5 306 7,332 733 12 965 90 9.0/20/2009 20.0 44,278 1,846 82.5 306 7,332 733 12 965 90 9.0/20/2009 20.0 44,750 1,831 79.7 78 363 7,059 706 15 1,140 11 9.0/20/2009 24.0 44,753 1,864 83.4 297 7,117 712 11 937 9 9.0/20/2009 24.0 44,753 1,864 83.4 297 7,117 712 11 937 9 9.0/20/2009 24.0 44,753 1,864 83.4 297 7,117 712 11 937 9 9.0/20/2009 24.0 44,891 1,890 83.3 297 7,133 713 11 9.0 9 9.0/20/2009 24.0 44,891 1,896 83.3 297 7,133 713 11 9.0 9 9.0/20/2009 24.0 44,895 1,896 83.3 297 7,133 713 11 9.0 9 9.0/20/2009 24.0 44,895 1,896 83.3 297 7,133 713 11 9.0 9 9.0/20/2009 24.0 44,895 1,896 83.3 297 7,133 713 11 9.0 9 9.0/20/2009 24.0 44,895 1,896 85.2 278 6,671 667 10 881 881	09/12/2009	24.0	4:5,216	1,884	84.3	287		690	11	909	91
09/14/2009 24.0 45.474 1,895 84.7 283 6,783 678 11 895 99 09/15/2009 24.0 42.145 1,756 78.5 353 8,470 847 14 1,109 11 99/15/2009 24.0 44.757 1,865 83.4 296 7,105 711 11 936 99 09/15/2009 24.0 44.757 1,865 83.4 296 7,105 711 11 936 99 09/15/2009 24.0 42.771 1,782 79.7 338 8,112 811 13 1,064 11 99/15/2009 24.0 42.771 1,782 79.7 338 8,112 811 13 1,064 11 13 1,068 11	09/13/2009	24.0	41,894	1,746	78.1	359		862	14	1,128	113
09/18/2009 24.0 42,145 1,756 78.5 353 8,470 847 14 1,109 11 906 1909/18/2009 24.0 44,757 1,865 83.4 296 7,106 715 11 94 1 94 1 99 1918/2009 24.0 44,757 1,865 83.4 296 7,106 715 11 94 1 94 1 99 1918/2009 24.0 44,757 1,865 83.4 296 7,106 715 11 94 1 1 30.6 9 1908/18/2009 24.0 42,771 1,782 79.7 338 8,112 811 13 1,094 11	09/14/2009		45,474	1,895	84.7			678	11		90
09/18/2009 24.0			4:2,145	1,756	78.5				14		111
09/17/2009 24.0 44,670 1,861 83.2 298 7,146 715 11 941 9 09/18/2009 24.0 42,771 1,782 79.7 338 8,112 811 13 1,064 10 09/18/2009 23.6 33,642 1,636 73.2 434 10,250 1,025 19 1,354 13 09/18/2009 24.0 42,837 1,777 79.5 341 8,187 819 14 1,073 11 09/18/2009 24.0 42,837 1,777 79.5 341 8,187 819 14 1,073 11 09/18/2009 24.0 42,837 1,777 79.5 341 8,187 819 14 1,073 11 09/18/2009 24.0 44,395 1,850 82,7 303 7,276 728 12 958 9 09/18/2009 24.0 44,395 1,732 77.5 367 8,814 881 15 1,668 10 09/18/2009 24.0 41,573 1,732 77.5 367 8,814 881 15 1,153 11 09/18/2009 24.0 41,573 1,732 77.5 367 8,814 881 15 1,153 11 09/18/2009 21.6 37,678 1,744 78.0 360 7,772 777 14 1,130 11 09/18/2009 17.7 29,523 1,668 74.6 410 7,259 726 17 1,262 12 09/18/2009 19.5 33,828 1,739 77.8 363 7,059 766 15 1,140 11 09/18/2009 24.0 44,278 1,845 82.5 306 7,332 733 12 965 9 09/30/2009 24.0 44,278 1,845 82.5 306 7,332 733 12 965 9 09/30/2009 24.0 44,278 1,845 82.5 306 7,332 733 12 965 9 09/30/2009 24.0 42,750 1,781 79.7 338 8,124 812 13 1,065 11 01/01/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 09/02/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 10/06/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 10/06/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 10/06/2009 24.0 44,697 1,785 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,133 7,13 11 940 9 10/06/2009 24.0 44,697 1,862 83.3 297 7,040 704 11 928 9 10/06/2009 24.0 44,697 1,862 83.3 398 9,11,13 11 90.0 3227 33 11/16/2009 24.0 44,696 1,792 83 84 15 6 16 16 16 16 1											94
09/18/2009 24.0 42,771 1,782 79.7 338 8,112 811 13 1,064 11 09/19/2009 23.6 33,642 1,636 73.2 434 10,250 1,025 19 1,354 13 09/20/2009 16.7 25,560 1,589 71.0 473 7,907 791 21 1,471 14 09/21/2009 24.0 42,537 1,777 79.5 341 8,187 819 14 1,073 11 09/22/2009 24.0 42,709 1,780 79.6 339 8,147 815 13 1,068 16 09/23/2009 24.0 44,395 1,850 62.7 303 7,276 728 12 958 9 09/24/2009 24.0 44,593 1,775 75.367 8,814 881 15 1,153 11 09/26/2009 21.6 37,678 1,744 78.0 360 7,772 777 14 1,130 11 09/26/2009 17.7 29,523 1,668 74.6 410 7,259 726 17 1,282 12 09/27/2009 20.9 37,750 1,811 81.0 323 6,730 673 13 1,017 10 09/28/2009 19.5 33,828 1,739 77.8 363 7,384 812 812 13 1,065 10 09/28/2009 24.0 44,278 1,845 82.5 306 7,332 733 12 965 9 09/30/2009 24.0 44,278 1,845 82.5 306 7,332 733 12 965 9 09/30/2009 24.0 42,750 1,781 79.7 338 8,124 812 13 1,065 10 00/20/2009 24.0 42,750 1,781 79.7 338 8,124 812 13 1,065 10 00/20/2009 24.0 42,750 1,781 79.7 338 423 7,016 702 18 1,322 10 00/20/2009 24.0 42,750 1,781 89.5 82.5 306 7,332 733 12 965 9 09/30/2009 24.0 42,750 1,781 89.5 84.5 82.5 306 7,332 733 12 965 9 09/30/2009 24.0 42,750 1,781 89.5 84.5 82.5 306 7,332 733 12 965 9 09/30/2009 24.0 42,750 1,781 79.7 338 8,124 812 13 1,065 10 00/2009 24.0 42,750 1,781 79.7 338 423 7,016 702 18 1,322 13 1,065 10 00/2009 24.0 42,750 1,785 79.4 342 8,204 820 14 1,075 10 00/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 00/00/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 00/00/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 00/00/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 00/00/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 00/00/2009 24.0 44,733 1,864 83.4 297 7,117 712 11 937 9 00/00/2009 24.0 44,897 1,862 83.3 297 7,133 713 11 940 99 0 10/00/2009 24.0 44,898 1,871 83.7 293 7,040 704 11 928 9 9 00/00/2009 24.0 44,898 1,871 83.7 293 7,040 704 11 928 9 9 00/00/2009 24.0 44,898 1,871 83.7 293 7,040 704 11 928 9 9 00/00/2009 24.0 44,898 1,871 83.7 293 7,040 704 11 928 9 9 00/00/2009 24.0 44,898 1,871 83.7 293 7,040 704 11 928 9 9 00/00/200	09/17/2009								11		94
09/19/2009 23.6 33.642 1.636 73.2 434 10.250 1.025 19 1.354 13.09/20/2009 16.7 23.560 1.589 71.0 473 7.907 791 21 1.471 14 14 15 09/21/2009 24.0 42.637 1.777 79.5 341 8.187 819 14 1.073 11 09/22/2009 24.0 42.709 1.780 79.6 339 8.147 815 13 1.068 11 09/23/2009 24.0 44.395 1.850 82.7 303 7.276 728 12 958 9 09/24/2009 24.0 44.395 1.850 82.7 303 7.276 728 12 958 9 09/24/2009 24.0 41.573 1.732 77.5 367 8.814 881 15 1.53 11 09/26/2009 21.6 37.678 1.744 78.0 360 7.772 777 14 1.130 11 09/26/2009 21.6 37.678 1.744 78.0 360 7.772 777 77 14 1.130 11 09/26/2009 17.7 29.523 1.668 74.6 410 7.259 726 17 1.282 12 09/26/2009 19.5 33.828 17.739 77.8 363 7.059 766 15 1.140 11 09/26/2009 24.0 44.278 1.845 82.5 306 7.332 733 12 965 9 90/30/2009 24.0 44.278 1.845 82.5 306 7.332 733 12 965 9 90/30/2009 24.0 44.278 1.845 82.5 306 7.332 733 12 965 9 90/30/2009 24.0 42.750 1.781 79.7 338 8.124 812 13 1.065 11 00/30/2009 24.0 42.750 1.781 79.7 338 8.124 812 13 1.065 11 00/30/2009 24.0 42.750 1.781 79.7 338 8.124 812 13 1.065 11 00/30/2009 24.0 42.607 1.775 79.4 342 8.204 820 14 1.075 11 00/30/2009 24.0 44.607 1.775 79.4 342 8.204 820 14 1.075 11 00/30/2009 24.0 44.839 1.860 83.4 297 7.117 712 11 937 937 10/06/2009 24.0 44.839 1.862 83.3 297 7.117 712 11 937 937 10/06/2009 24.0 44.839 1.862 83.3 297 7.117 712 11 937 937 10/06/2009 24.0 44.898 1.871 8.862 83.3 297 7.117 712 11 937 937 90/06/2009 24.0 44.697 1.862 83.3 297 7.117 712 11 937 937 90/06/2009 24.0 44.697 1.862 83.3 297 7.133 713 11 940 9 80 88 80 10/09/2009 24.0 44.6967 1.781 8.862 83.3 297 7.713 713 11 940 9 80 88 80 80 80 80 80 80 80 80 80 80 80											106
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11/17/2009 23.2 39,890 1,717 76.8 377 8,751 875 15 1,181 11 11/21/2009 21.0 32,322 1,539 68.8 519 10,890 1,089 23 1,608 16 11/22/2009 24.0 40,146 1,673 74.8 407 9,760 976 17 1,272 12 11/23/2009 24.0 41,376 1,724 77.1 372 8,937 894 15 1,168 11 11/24/2009 8.9 11,558 1,296 57.9 857 7,648 765 45 2,614 26 Total lbs = 196,865 Total lbs = 29,											323
11/21/2009 21.0 32,322 1,539 68.8 519 10,890 1,089 23 1,608 16 11/22/2009 24.0 40,146 1,673 74.8 407 9,760 976 17 1,272 12 11/23/2009 24.0 41,376 1,724 77.1 372 8,937 894 15 1,168 11 11/24/2009 8.9 11,558 1,296 57.9 857 7,648 765 45 2,614 26 Total lbs = 196,865 Total lbs = 29,											641
11/22/2009											118
11/23/2009											161
11/24/2009 8.9 $11,558$ $1,296$ 57.9 857 $7,648$ 765 45 $2,614$ 26 Total lbs = 196,865 Total lbs = 29,											127
Total lbs = 196,865 Total lbs = 29,											117
	11/24/2009	8.9	11,558	1,296	57.9	857			45		261

Checked by: _ Reviewed by: _



^a Calculated using Y = 120,564,454.53 $X^{-2.92}$, where "X" is load (see Figure 1). ^b Using 90-percent control due to the oxidation catalyst system. ^c Calculated using Y = 244,919,743.15 $X^{-3.82}$, where "X" is load (see Figure 1).

TABLE 3
2008 CO Emissions Based on Load Varying Emissions Profile

		2008 CE			Using Current Co	mbustion Syste	m Emissions Profile	Using	LLT Emiss	ions Profile
Day	Operating Hours (hrs/day)	Daily Heat Input (MMBtu/yr)	Heat Input Rate (MMBtu/hr)	Load (%)	Uncontro (lb/hr)	olled CO ^a (lb/day)	Controlled CO ^b (lb/day)	Uncontr (lb/hr)	olled CO ^c (lb/day)	Controlled CO
01/01/2008	8.2	7,920	968	43.3	2,008	16,424	1,642	137	5,945	595
01/02/2008	24.0	32,734	1,364	61.0	738	17,714	1,771	37	2,262	226
01/03/2008	13.3	22,778	1,709	76.4	382	5,094	509	16	1,198	120
01/09/2008	14.0	15,623	1,116	49.9	1,326	18,566	1,857	80	3,983	398
01/10/2008	24.0	39,992	1,666	74.5	411	9,871	987	17	1,286	129
)1/11/2008	1.0	1,034	1,089	48.7	1,425	1,354	135	88	4,269	427
3/03/2008	19.2	26,792	1,394	62.3	693	13,312	1,331	34	2,127	213
3/04/2008	23.2 3.2	37,404	1,614 813	72.2 36.4	452	10,471	1,047	20	1,408	141
)3/14/2008)3/15/2008	24.0	2,586 37,287	1,554	69.5	3,343 505	10,631 12,111	1,063 1,211	268 23	9,728 1,567	973 157
03/16/2008	24.0	48,161	2,007	89.7	239	5,736	574	8	761	76
3/17/2008	24.0	42,088	1,754	78.4	354	8,503	850	14	1,113	111
3/18/2008	24.0	41,782	1,741	77.9	362	8,686	869	15	1,136	114
3/19/2008	24.0	41,976	1,749	78.2	357	8,569	857	14	1,122	112
3/20/2008	24.0	43,305	1,804	80.7	326	7,824	782	13	1,027	103
3/21/2008	24.0	39,752	1,656	74.1	419	10,046	1,005	18	1,308	131
3/22/2008	24.0	36,895	1,537 1,628	68.8 72.8	520 440	12,490	1,249	23	1,614	161
3/23/2008 3/29/2008	23.1 24.0	37,602 33,505	1,396	62.4	690	10,172 16,549	1,017 1,655	19 34	1,374 2,118	137 212
3/30/2008	24.0	40,589	1,691	75.6	394	9,453	945	16	1,233	123
3/31/2008	24.0	42,801	1,783	79.8	337	8,096	810	13	1,233	106
4/01/2008	18.4	32,631	1,773	79.3	343	6,309	631	14	1,002	108
4/02/2008	9.8	13,952	1,424	63.7	651	6,382	638	31	2,004	200
4/03/2008	24.0	41,284	1,720	76.9	375	8,996	900	15	1,176	118
4/04/2008	24.0	42,416	1,767	79.0	346	8,312	831	14	1,089	109
4/05/2008	24.0	42,505	1,771	79.2	344	8,262	826	14	1,083	108
4/06/2008	24.0	40,001	1,667	74.5	411	9,864	986	17	1,285	128
4/07/2008	24.0	. 39,257	1,636	73.2	434	10,420	1,042	19	1,355	135
4/08/2008	24.0	37,804	1,575	70.4	485	11,633	1,163	21	1,507	151
4/09/2008 4/10/2008	24.0 24.0	39,925 41,196	1,664 1,716	74.4 76.8	413 377	9,919 9,053	992	17 15	1,292	129
4/10/2008 4/11/2008	24.0 24.0	41,196 43,045	1,716 1,79 4	76.8 80.2	377 332	9,052 7,963	905 796	15 13	1,183 1,045	118 104
4/12/2008	21.8	34,635	1,587	71.0	474	10,342	1,034	21	1,475	147
4/19/2008	14.8	18,745	1,267	56.6	916	13,560	1,356	49	2,787	279
4/20/2008	24.0	38,777	1,616	72.3	450	10,801	1,080	19	1,403	140
4/21/2008	24.0	41,720	1,738	77.7	363	8,724	872	15	1,141	114
4/22/2008	4.5	5,544	1,246	55.7	961	4,278	428	52	2,920	292
4/25/2008	19.4	29,752	1,534	68.6	524	10,167	1,017	24	1,625	162
4/26/2008	24.0	41,012	1,709	76.4	382	9,171	917	16	1,198	120
4/27/2008	4.3	5,452	1,259	56.3	932	4,035	404	50	2,833	283
6/16/2008 6/17/2008	18.3 21.6	21,410 36,188	1,170 1,673	52.3 74.8	1,155 406	21,140 8,792	2,114 879	67 47	3,486	349
6/18/2008	18.8	25,861	1,378	61.6	717	13,450	1,345	17 36	1,271 2,198	127 220
06/19/2008	22.9	36,777	1,607	71.9	457	10,454	1,045	20	1,423	142
6/20/2008	17. 4	26,972	1,555	69.5	504	8,739	874	22	1,423	156
6/21/2008	24.0	32,082	1,337	59.8	783	18,786	1,879	40	2,394	239
6/22/2008	17.2	23,771	1,384	61.9	707	12,131	1,213	35	2,168	217
6/23/2008	19.6	31,945	1,632	73.0	437	8,565	856	19	1,365	136
6/24/2008	23.5	38,264	1,627	72.8	441	10,374	1,037	19	1,376	138
6/25/2008	17.6	27,445	1,561	69.8	498	8,746	875	22	1,545	155
6/26/2008	24.0	36,070	1,503	67.2	556 381	13,343	1,334	26	1,720	172
6/27/2008 6/28/2008	24.0 24.0	41,055 40,410	1,711 1,684	76.5 75.3	381 399	9,143 9,575	914 958	16 17	1,194	119 125
6/28/2008 6/29/2008	24.0 22.2	40,410 35,026	1,684 1,581	75.3 70.7	399 479	9,575 10,615	958 1,061	17 21	1,249 1,490	125 149
6/30/2008	15.9	22,680	1,431	64.0	642	10,170	1,017	31	1,490	198
7/01/2008	24.0	36,592	1,525	68.2	533	12,795	1,279	24	1,652	165
7/02/2008	21.9	33,881	1,546	69.1	512	11,228	1,123	23	1,589	159
7/03/2008	14.0	20,218	1,444	64.6	625	8,744	874	30	1,925	192
7/04/2008	21.0	33,411	1,591	71.2	471	9,886	989	21	1,465	146
7/05/2008	1.5	1,127	742	33.2	4,373	6,647	665	380	12,609	1,261
7/07/2008	19.8	30,023	. 1,519	67.9	539 474	10,662	1,066	25	1,670	167
7/08/2008 7/09/2008	22.1 17.4	35,042 28,948	1,588 1,661	71.0 74.3	474 415	10,452 7,238	1,045 724	21 17	1,473 1,298	147 130
7/09/2008 7/10/2008	17. 4 22.7	28,948 37,606	1,654	74.3 74.0	415 420	7,238 9,545	724 955	17	1,298 1,312	130
7/11/2008	14.8	21,495	1,449	64.8	618	9,165	917	29	1,905	191
7/17/2008	1.0	577	588	26.3	8,595	8,423	842	920	24,213	2,421
7/18/2008	24.0	32,936	1,372	61.4	725	17,398	1,740	36	2,223	222
7/19/2008	20.9	37,109	1,774	79.3	343	7,168	717	14	1,078	108
7/20/2008	19.5	34,243	1,761	78.7	350	6,812	681	14	1,101	110
7/21/2008	23.3	40,300	1,727	77.3	370	8,638	864	15	1,162	116
7/22/2008	17.0	25,147	1,481	66.2	580	9,854	985	27	1,793	179
7/23/2008	22.3	35,565	1,593	· 71.2	469	10,479	1,048	21	1,461	146
7/24/2008	17.0	24,704	1,453	65.0	613	10,427	1,043	29	1,892	189
7/25/2008 7/28/2008	20.6 19.3	31,979 29,990	1,556 1,558	69.6 69.7	502 501	10,321 9,635	1,032 ⁻ 964	22 22	1,559 1,554	156 155
7/28/2008 7/29/2008	19.3 22.4	29,990 35,889	1,602	69.7 71.7	501 461	9,635 10,331	964 1,033	22 20	1,554 1,436	155 144
7/30/2008	10.7	35,669 17,566	1,642	73.4	430	4,597	460	18	1,436	134
8/01/2008	3.0	2,573	866	38.7	2,777	8,247	825	210		813
8/02/2008	24.0	39,723	1,655	74.0	419	10,067	1,007	18	1,311	131
8/03/2008	23.7	41,831	1,767	79.0	347	8,212	821	14	1,091	109
8/04/2008	16.3	26,538	1,633	73.0	436	7,088	709	19	1,361	136
8/05/2008	23.4	40,877	1,751	78.3	356	8,315	831	14	1,119	112
8/06/2008	17.0	28,641	1,688	75.5	396	6,724	672	16	1,240	124
8/07/2008	24.0	43,752	1,823	81.5		7,593	759	12	998	100
8/08/2008	21.8	35,094	1,610	72.0	455	9,917	992	20	1,417	142
8/09/2008	17.0	25,825	1,519	67.9	539	9,160	916	25	1,669	167
08/10/2008	21.5	32,904	1,534	68.6	524 451	11,234	1,123	24	1,624	162
8/11/2008	15.8	25,424 33,370	1,614 1,556	72.2	451 502	7,107 10.738	711	19 22	1,406	141 156
18/12/2008 18/13/2008	21.4 17.0	33,270 27,414	1,556 1,613	69.6 72.1	502 453	10,738 7,694	1,074 769	22 20	1,559 1,410	156 141
18/13/2008 18/14/2008	17.0 21.5	27,414 34,251	1,595	72.1 71.3	453 467	7, 094 10,028	1,003	20	1,410	141
/UI 17/6UUU	21.0	29,444	1,636	73.2	434	7,814	7,003 781	20 19	1,454	135



TABLE 3 2008 CO Emissions Based on Load Varying Emissions Profile

		2008 CE			Using Current C	ombustion Syste	m Emissions Profile	Using	LLT Emiss	ions Profile
	Operating	Daily Heat	Heat Input	Land	11		Commelled COb	11	. II. 4 006	Controlled COb
Day	Hours (hrs/day)	Input (MMBtu/yr)	Rate (MMBtu/hr)	Load (%)	(lb/hr)	rolled CO ^a (lb/day)	Controlled CO ^b (lb/day)	(lb/hr)	olled CO ^c (lb/day)	Controlled CO ^b (lb/day)
08/16/2008	23.3	34,497	1,482	66.3	579	13,464	1,346	27	1,788	179
08/17/2008	17.0	27,569	1,625	72.7	443	7,516	752	19	1,381	138
08/18/2008	20.0	27,893	1,393	62.3	695	13,913	1,391	34	2,133	213
08/19/2008	19.0	29,847	1,571	70.3	489	9,283	928	22	1,518	152
08/20/2008	24.0	41,222	1,718	76.8	376	9,035	904	15	1,181	118
08/21/2008	24.0	43,176	1,799	80.5	329	7,892 5,735	789	13	1,036	104
08/22/2008 08/23/2008	24.0 24.0	48,193 44,378	2,008 1,849	89.8 82.7	239 303	5,725 7,284	573 728	8 12	760 959	76 96
08/24/2008	24.0	43,050	1,794	80.2	332	7,960	726 796	13	1,045	104
08/25/2008	23.8	44,053	1,853	82.8	302	7,178	718	12	954	95
08/26/2008	16.5	28,238	1,713	76.6	379	6,247	625	16	1,188	119
08/27/2008	24.0	42,655	1,777	79.5	341	8,177	818	13	1,072	107
08/28/2008	23.2	38,098	1,641	73.4	430	9,991	999	18	1,343	134
08/29/2008	16.5	27,874	1,692	75.7	393	6,474	647	16	1,231	123
08/30/2008	23.1	31,811	1,379	. 61.7	715	16,492	1,649	36	2,193	219
08/31/2008	16.8	21,260	1,264	56.5	922	15,505	1,550	50	2,803	280
09/01/2008	23.8	35,960	1,509	67.5	549	13,092	1,309	25	1,701	170
09/02/2008	16.9	26,524	1,567	70.1	492	8,336	834	22	1,530	153
09/03/2008	24.0	37,829	1,576	70.5	484	11,611	1,161	21	1,504	150
09/04/2008	16.1	26,020	1,621	72.5	446	7,152	715	19	1,389	139
09/05/2008	22.9	37,395	1,637	73.2	434	9,906	991	18	1,353	135
09/06/2008	16.6	27,260	1,642	73.4	429	7,125	712	18	1,340	134
09/07/2008	24.0	41,454	1,727	77.2	370	8,888	889	15	1,162	116
09/08/2008	23.1	41,171	1,786	79.9	336	7,740	774	13	1,057	106
09/09/2008	17.0	28,732	1,695	75.8	391	6,631	663	16	1,225	123
09/10/2008	22.7	36,662	1,617	72.3	449	10,175	1,017	19	1,399	140
09/11/2008	17.6	28,114	1,600	71.6	463	8,135	813	20	1,442	144
09/12/2008	23.2	41,118	1,771	79.2	344	7,996	800	14	1,083	108
09/13/2008	17.0	29,311	1,724	77.1	372	6,329	633	15	1,168	117
09/14/2008	23.8	40,250	1,693	75.7	392	9,328	933	16	1,229	123
09/15/2008	16.5	28,796	1,743	78.0	361	5,957	596	15	1,132	113
09/16/2008	23.8	44,085	1,851	82.8	303	7,211	721	12	956	96
09/17/2008	16.5	27,284	1,652	73.9	422	6,973	697	18	1,318	132
09/18/2008	22.7	39,935	1,757	78.6	352	8,009	801	14	1,107	111
09/19/2008	16.0	26,780	1,674	74.9	406	6,496	650 700	17	1,270	127
09/20/2008	23.1	42,670	1,850	82.7	303	6,996 6,133	700 612	12 15	958 1 121	96 113
09/21/2008 09/22/2008	17.0	29,646	1,744	78.0	360 373	6,122	612	15 15	1,131	113 117
09/22/2008	21.7 18.3	37,368 30,867	1,724 1,690	77.1 75.6	373 395	8,078 7,217	808 722	16	1,169 1,237	124
09/24/2008	22.8	38,723	1,700	76.0	388	8,840	884	16	1,237	122
09/27/2008	21.0	35,673	1,699	76.0 76.0	389	8,165	816	16	1,218	122
09/28/2008	24.0	43,229	1,801	80.6	328	7,864	786	13	1,032	103
09/29/2008	24.0	47,255	1,969	88.1	253	6,063	606	9	803	80
09/30/2008	24.0	44,872	1,870	83.6	294	7,052	705	11	929	93
10/01/2008	24.0	44,023	1,834	82.0	311	7,457	746	12	981	98
10/02/2008	23.9	41,397	1,732	77.5	367	8,779	878	15	1,153	115
10/03/2008	16.4	29,005	1,769	.79.1	346	5,668	567	14	1,087	109
10/04/2008	24.0	41,600	1,733	77.5	367	8,797	880	15	1,150	115
10/05/2008	24.0	38,521	1,605	71.8	459	11,012	1,101	20	1,429	143
10/06/2008	24.0	45,059	1,877	84.0	290	6,967	697	11	918	92
10/07/2008	24.0	46,690	1,945	87.0	262	6,280	628	10	831	83
10/08/2008	24.0	45,350	1,890	84.5	285	6,838	684	11	902	90
10/09/2008	24.0	44,747	1,864	83.4	296	7,110	711	11	937	94
10/10/2008	24.0	44,645	1,860	83.2	298	7,157	716	11	943	94
10/11/2008	24.0	44,988	1,874	83.8	292	7,000	700	11	923	92
10/12/2008	24.0	45,376	1,891	84.6	284	6,826	683	11	900	90
10/13/2008	24.0	46,989	1,958	87.6	257	6,164	616	9	816	82
10/14/2008	24.0	45,496	1,896	84.8	282	6,774	677	11	894	89
10/15/2008	24.0	43,251	1,802	80.6	327	7,853	785	13	1,031	103
10/16/2008	24.0	44,246	1,844	82.5	306	7,348	735	12	967	97
10/17/2008	24.0	45,212	1,884	84.2	287	6,899	690	11	910	91
10/18/2008	24.0	45,964	1,915	85.7	274	6,574	657	10	868	87 134
10/19/2008	24.0	39,419	1,642	73.5	429 383	10,295	1,030	18 16	1,339	134
10/20/2008	24.0	41,024	1,709	76.4	382	9,163 7,856	916 706	16 13	1,197	120 103
10/21/2008	24.0	43,245	1,802 1,733	80.6 77.5	327 367	7,856 8 807	786 881	13 15	1,031	103 115
10/22/2008	24.0 24.0	41,584 42,346	1,733 1,764	77.5 78.0	367 348	8,807 8,352	881 835	15 14	1,152	115 109
10/23/2008	24.0	42,346 41,066	1,764	78.9	348 310	8,352 6,046	835 605	14 12	1,094	109
10/24/2008 12/11/2008	22.4 7.4	41,066 6.589	1,835 894	82.1 40.0	310 2.534	6,946 18 676	695	12 186	980 7.444	. 98 744
12/11/2008	7.4 17.7	6,589 23,200	894 1,313	40.0 58.7	2,534 825	18,676 14,575	1,868 1,457	186 43	7,444 2,518	744 252
12/ 10/2000	17.7	23,200	1,313 min =	58.7 0.0		Total Ibs =	149,606	43	2,518 =	
			10001 -	(11)		IDIALIDS =	149.000			2× 4/1 (

^a Calculated using Y = $120,564,454.53X^{-2.92}$, where "X" is load (see Figure 1).

Checked by: _ Reviewed by:



^b Using 90-percent control due to the oxidation catalyst system.
^c Calculated using Y = 244,919,743.15X^{-3.82}, where "X" is load (see Figure 1).

TABLE 4
2009 VOC Emissions Based on Load Varying Emissions Profile

	Operating	2009 CE	EM Data Heat Input		Using Current Co	ombustion Syst	em Emissions Profile	Using LLT Em	nissions Profile	Controlled
	Hours	Input	Rate	Load	Uncontro		Controlled VOC ^b		olled VOC	VOC _p
Day	(hrs/day)	(MMBtu/yr)	(MMBtu/hr)	(%)	(lb/hr)	(lb/day)	(lb/day)	(lb/hr)	(lb/day)	(lb/day)
1/20/2009 1/21/2009	11.5 24.0	13,739 41,016	1,192 1,709	53.3 76.4	64 17	743 403	446 242	1 0	63 11	38 7
1/22/2009	24.0	41,064	1,711	76.5	17	4 01	241	Ö	11	7
1/23/2009	10.5	17,226	1,645	73.6	19	203	122	0	13	8
1/27/2009	23.3	38,584	1,658	74.2	19 146	438	263	0	13	8
2/04/2009 2/05/2009	13.3 24.0	12,720 40,588	958 1,691	42.8 75.6	146 17	1,934 419	1,160 252	0	179 12	108 7
2/06/2009	15.6	27,331	1,752	78.4	15	239	143	Ö	10	· 6
2/20/2009	13.0	17,614	1,355	60.6	40	519	311	1	34	20
2/21/2009	24.0	43,590	1,816	81.2	13	321	193	0	8	5
2/22/2009 2/23/2009	24.0 24.0	44,117 46,885	1,838 1,95 4	82.2 87.4	13 10	307 245	184 147	0 0	8 6	5
2/24/2009	24.0	48,275	2,011	90.0	9	220	132	Ö	5	3
2/25/2009	24.0	44,941	1,873	83.7	12	287	172	0	7	4
2/26/2009	24.0	44,345	1,848	82.6	13	301	181	0	8	5
2/27/2009 2/28/2009	24.0 24.0	46,029 46,564	1,918 1,940	85.8 86.8	11 10	262 251	157 151	0 0	6 6	4
3/01/2009	24.0	45,112	1,880	84.1	12	283	170	Ö	7	4
3/02/2009	24.0	50,609	2,109	94.3	8	184	110	0	4	2
3/03/2009	24.0	49,003	2,042	91.3	9	208	125	0	5	3
3/04/2009 3/05/2009	24.0 24.0	47,650 48,950	1,985 2,040	88.8 91.2	10 9	230 208	138 125	0 0	5 5	3 3
3/06/2009	24.0	48,082	2,003	89.6	9	223	134	0	5	3 3
3/07/2009	24.0	46,368	1,932	86.4	11	255	153	Ō	6	4
3/08/2009	24.0	48,246	2,010	89.9	9	220	132	0	5	3
3/09/2009 3/10/2009	24.0 24.0	47,708 44,525	1,988 1,855	88.9 83.0	10 12	229 207	138	0	5	3
3/10/2009 3/11/2009	24.0 24.0	44,525 46,546	1,855 1,939	83.0 86.7	12 10	297 252	178 151	0 0	8 6	5 4
3/12/2009	24.0	48,750	2,031	90.8	9	212	127	0	5	3
3/13/2009	24.0	47,269	1,970	88.1	10	237	142	0	6	3
3/14/2009	24.0	44,177	1,841	82.3	13	306	183	0	8	5
3/15/2009 3/16/2009	24.0 24.0	43,371 45,600	1,807 1,900	80.8 85.0	14 11	327 272	196 163	0 0	9 7	5
3/16/2009	24.0	45,680 45,680	1,900	85.1	11	272 270	162	0	7	4
3/18/2009	24.0	46,257	1,927	86.2	11	257	154	Ö	6	4
3/19/2009	24.0	46,131	1,922	86.0	11	260	156	0	6	4
3/20/2009 3/21/2009	24.0 24.0	47,371 45,635	1,974 1,901	88.3 85.0	10 11	236 271	141	0 0	6	3
3/21/2009 3/22/2009	24.0 24.0	45,635 47,147	1,901 1,964	85.0 87.9	11 10	271 240	162 144	0	, 6	4 3
3/23/2009	24.0	45,007	1,875	83.9	12	285	171	ő	7	4
3/24/2009	24.0	46,411	1,934	86.5	11	254	153	0	6	4
3/25/2009	24.0	45,929 44,014	1,914	85.6	11	264	159	0	7	4
3/26/2009 3/27/2009	. 24.0 24.0	44,914 45,246	1,871 1,885	83.7 84.3	12 12	287 280	172 168	0 n	7	4
3/28/2009	24.0	44,586	1,858	83.1	12	295	177	0	8	4 5
3/29/2009	16.8	28,659	1,706	76.3	17 ⁻	284	170	0	11	7
3/30/2009	24.0	47,193	1,966	87.9	10	239	143	0	6	3
3/31/2009 4/01/2009	24.0 24.0	46,585 47,161	1,941 1,965	86.8 87.9	10 10	251 239	150 144	0	6	4
4/01/2009 4/02/2009	24.0	46,770	1,965	87.9 87.2	10	239 247	144 148	0	6	3 4
4/03/2009	24.0	47,659	1,986	88.8	10	230	138	0	5	3
4/04/2009	24.0	49,998	2,083	93.2	8	193	116	0	4	3
4/05/2009 4/06/2009	24.0 24.0	49,565 48,406	2,065 2,017	92.4 90.2	8 9	199	119	0 0	5 5	3
4/07/2009	24.0	48,139	2,006	89.7	9	217 222	130 133	0	5 5	3
4/08/2009	21.3	44,212	2,076	92.8	8	173	104	0	4	3
4/09/2009	16.9	30,135	1,780	79.6	14	244	147	0	9	6
4/10/2009 4/11/2009	24.0 24.0	46,664 46,506	1,944 1,938	87.0 86.7	10 11	249 252	149 151	0 0	6 6	4
4/11/2009 4/12/2009	24.0 24.0	46,506 46,560	1,936 1,940	86.8	10	252 251	151	0	6	4
4/13/2009	24.0	48,097	2,004	89.6	9	223	134	Ö	5	3
4/14/2009	24.0	48,692	2,029	90.7	9	213	128	0	5	3
4/15/2009	24.0	46,482	1,937	86.6	11	253	152	0	6	4
1/16/2009 1/17/2009	24.0 24.0	45,529 46,239	1,897 1,927	84.8 86.2	11 11	273 258	164 155 ·	0	/ 6	4 4
/18/2009	24.0	45,379	1,891	84.6	12	276	166	0	7	4
/19/2009	24.0	45,498	1,896	84.8	11	274	164	0	7	4
/20/2009 //21/2009	24.0 24.0	45,246 47,807	1,885	84.3 80.1	12	280	168	0	7	4
1/21/2009	24.0 24.0	47,807 44,084	1,992 1,837	89.1 82.1	9 13	228 308	137 185	0	5 8	ა 5
/23/2009	24.0	39,066	1,628	72.8	20	483	290	0	14	8
/24/2009	24.0	46,711	1,946	87.0	10	248	149	0	6	4
/25/2009	24.0	45,030 45,390	1,876	83.9	12	285	171	0	. 7	4
1/26/2009 1/27/2009	24.0 24.0	45,380 46,054	1,891 1,919	84.6 85.8	12 11	276 262	166 157	0	7	4
/28/2009	24.0 24.0	46,054 45,603	1,919 1,900	85.8 85.0	11 11	262 271	157 163	U N	6 7	4 4
/29/2009	24.0	46,047	1,919	85.8	11	262	157	ő	6	4
/30/2009	24.0	47,868	1,995	89.2	9	227	136	0	5	3
i/01/2009 i/02/2009	24.0 24.0	44,449 45,822	1,852	82.8 85.4	12 11	299	179 160	0 0	8	5
6/02/2009 6/03/2009	24.0 24.0	45,822 45,139	1,909 1,881	85. 4 84.1	11 12	267 282	160 169	0	7	4 4
/04/2009	_ 24.0 _ 24.0	47,167	1,965	87.9	10	239	144			3
/05/2009	24.0	46,271	1,928	86.2	11	257	154	0	6	4
/06/2009 /07/2009	24.0 24.0	47,859 47,713	1,99 4 1,988	89.2 88.9	9 10	227 220	136 138	0	5 5	3
i/07/2009 i/08/2009	24.0 24.0	46,863	1,988	88.9 87.3	10 10	229 245	138 147	0	5 6	3 4
/09/2009	24.0	44,614	1,859	83.1	12	295	177	Õ	7	4
5/10/2009	24.0	42,882	1,787	79.9	14	341	205	0	9	5
5/11/2009	24.0	44,277	1,845	82.5	13	303	182	0	8	5
5/12/2009	24.0 24.0	42,623 43.585	1,776 1,816	79.4 81.2	15 13	349 321	210	0	9	6
5/13/2009 5/14/2009	24.0 24.0	43,585 43,501	1,816 1,813	81.2 81.1	13 13	321 324	193 194	0 0	8 8	5 5
5/15/2009 5/15/2009	24.0	42,212	1,759	78.7	15	362	217	0	10	6
6/16/2009	24.0	43,767	1,824	81.6	13	316	190	0	8	5
5/17/2009	24.0	43,806	1,825	81.6	13	315	189	0	8	5
5/18/2009	24.0	40,599 41.880	1,692 1,745	75.7 78.0	17 16	419 373	251	. 0	12	7
5/19/2009 5/20/2009	24.0 24.0	41,880 44,419	1,7 4 5 1,851	78.0 82.8	16 12	373 299	224 180	0 0	10 8	ნ 5
/20/2009	24.0	45,684	1,904	85.1	11 ·	270	162	0	7	4
	24.0	46,411	1,934	86.5	11	254	153	ő	6	-



TABLE 4
2009 VOC Emissions Based on Load Varying Emissions Profile

	O		EM Data		Using Current Co	ombustion Syst	em Emissions Profile	Using LLT En	nissions Profile	Controlled
_	Operating Hours	Daily Heat Input	Heat Input Rate	Load	Uncontro		Controlled VOCb		olled VOC ^c	VOC ^b
Day	(hrs/day)	(MMBtu/yr)	(MMBtu/hr)	(%)	(lb/hr)	(lb/day)	(lb/day)	(lb/hr)	(lb/day)	(lb/day)
05/23/2009 05/24/2009	24.0 24.0	44,643 41,521	1,860 1,730	83.2 77.4	12 16	294 385	176 231	0	7 11	4 . 6
05/25/2009	24.0	42,347	1,764	78.9	15	358	215	0	10	6
05/26/2009	24.0	43,575	1,816	81.2	13	322	193	0	8	5
05/27/2009 05/28/2009	24.0 24.0	43,988 42,337	1,833 1,764	82.0 78.9	13 15	311 358	186 215	0 0	8 10	5 6
05/29/2009	19.2	33,346	1,740	77.8	16	301	181	ŏ	10	6
05/30/2009	24.0	42,764	1,782	79.7	14	345	207	0	9	5
05/31/2009 06/01/2009	22.8 17.4	37,067 30,040	1,628 1,728	72.8 - 77.3	20 16	458 280	275 168	0 0	14 11	8 6
06/02/2009	24.0	40,991	1,708	76.4	17	404	242	0	11	7
06/03/2009 06/04/2009	24.0 24.0	41,580 39,503	1,733 1,646	77.5 73.6	16 19	383 464	230 278	0 0	10 13	6 8
06/05/2009	24.0	40,278	1,678	75.1	18	431	259	0	12	7
06/06/2009	24.0	40,851	1,702	76.1	17	409	246	0	11	7
06/07/2009 06/08/2009	24.0 24.0	35,706 39,375	1,488 1,641	66.5 73.4	28 20	676 469	406 282	0 0	22 14	13 8
06/09/2009	22.5	39,306	1,748	78.2	15	347	208	0	10	6
06/10/2009	16.8	29,908	1,786	79.9	14	239	143	0	9	5
06/11/2009 06/12/2009	24.0 24.0	48,069 45,150	2,003 1,881	89.6 84.1	9 12	223 282	134 169	0 0	5 7	3 4
06/12/2009	24.0 24.0	43,763	1,823	81.5	13	262 317	190	0	, 8	4 5
06/14/2009	24.0	39,910	1,663	74.4	19	446	268	0	13	8
06/15/2009	21.4	34,800	1,624	72.6	20	436	261	0	14	9
06/16/2009 06/17/2009	17.9 24.0	30,153 40,649	1,683 1,694	75.3 75.7	18 17	319 417	191 250	0 0	12 12	7 7
06/18/2009	18.8	27,053	1,441	64.4	32	597	358	0	25	15
06/19/2009	17.2	28,864	1,676	75.0	18	311	187	0	12	7
06/20/2009 06/21/2009	24.0 24.0	41,311 40,745	1,721 1,698	77.0 75.9	16 17	392 413	235 248	0 0	11 12	6 7
06/22/2009	22.7	39,881	1,761	78.7	15	340	204	0	10	6
06/23/2009	17.8	28,569	1,608	71.9	21	375	225	0	15	9
06/24/2009 06/25/2009	24.0 ⁻ 17.9	39,649 25,341	1,652 1,413	73.9 63.2	19 34	457 613	274 368	0 0	-13 28	8 17
06/26/2009	4.9	4,608	940	42.1	156	764	. 458	5	196	117
06/27/2009	20.1	29,416	1,466	65.5	30	598	359	0	23	14
06/28/2009	23.7	37,857	1,596	71. 4 76.5	22	514	309 473	0	16	9
06/29/2009 06/30/2009	17.1 24.0	29,256 36,118	1,711 1,505	67.3	17 27	286 648	172 389	0 ·	. 11 21	. 7 · 12
07/01/2009	24.0	40,143	1,673	74.8	18	437	262	Ö	12	7
07/02/2009	24.0	40,964	1,707	76.3	17	405	243	0	11	7
07/03/2009 07/04/2009	24.0 24.0	42,370 43,349	1,765 1,806	79.0 80.8	15 14	357 328	21 4 197	0 0	10 9	6 5
07/05/2009	24.0	43,539	1,814	81.1	13	323	194	Ö	8	5
07/06/2009	24.0	44,541	1,856	83.0	12	296	178	0	8	5
07/07/2009 07/08/2009	24.0 24.0	42,856 43,582	1,786 1,816	79.9 81.2	14 13	342 321	205 193	0	9 8	5 5
07/09/2009	24.0	44,044	1,835	82.1	13	309	185	Ö	8	5
07/10/2009	24.0	45,689	1,904	85.1	11	270	162	0	7	4
07/11/2009 07/12/2009	24.0 24.0	44,971 44,744	1,874 1,864	83.8 83.4	12 12	286 291	172 175	0 0	7 7	4 4
07/13/2009	24.0	44,026	1,834	82.0	13	310	186	0	8	5
07/14/2009	24.0	45,135	1,881	84.1	12	282	169	0	7	4
07/15/2009 07/16/2009	24.0 24.0	46,051 46,380	1,919 1,932	85.8 86.4	11 11	262 255	157 153	0	6	4
07/17/2009	24.0	42,818	1,784	79.8	14	343	206	0	6 9	5
07/18/2009	24.0	38,771	1,615	72.2	21	497	298	0	15	9
07/19/2009 07/20/2009	24.0 21.2	37,632 34,170	1,568 1,613	70.1 72.2	23 21	556 441	333 265	0 0	17 15	10 9
07/21/2009	16.2	27,634	1,706	76.3	17	274	164	0	11	9 7
07/22/2009	24.0	44,081	1,837	82.1	13	308	185	0	8	5
07/23/2009	24.0	42,526	1,772	79.2	15	352 372	211	0	9	6
07/24/2009 07/25/2009	24.0 22.5	41,900 37,814	1,746 1,679	78.1 75.1	16 18	372 404	223 242	0 0	10 12	6 7
07/27/2009	16.9	29,307	1,731	77.4	16	271	163	0	11	6
07/28/2009 07/29/2009	24.0 24.0	44,280 44,750	1,845 1,865	82.5 83.4	13 12	303 291	182 175	0 0	8 7	5 4
07/29/2009	2 4 .0 16.0	25,021 .	1,564	69.9	23	291 374	225	0	, 17	4 10
07/31/2009	24.0	46,428	1,934	86.5	11	254	152	0	6	4
08/01/2009 08/02/2009	24.0 24.0	46,279 46,129	1,928 1,922	86.2 86.0	11 11	257 260	154 156	0 0	6 _. 6	4 4
08/02/2009	24.0 24.0	46,129 45,627	1,922	85.0	11	260 271	163	0	7	4
08/04/2009	24.0	43,775	1,824	81.6	13	316	190	Ö	8	5
08/05/2009	24.0 24.0	39,862 40.734	1,661 1,607	74.3 75.0	19 17	448 414	269 248	0	13 12	8
08/06/2009 08/07/2009	24.0 23.6	40,734 40,862	1,697 . 1,734	75.9 77.5	17 16	414 375	248 225	0 0	12 10	7 6
08/08/2009	16.6	26,916	1,618	72.4	21	342	205	0	15	9
08/09/2009	24.0	41,738	1,739	77.8	16	378	227	0	10	6
08/10/2009 08/11/2009	23.3 17.0	43,538 29,791	1,873 1,752	83.7 78.4	12 15	278 260	167 156	0	7 10	4 6
08/12/2009	24.0	41,618	1,734	77.6	16 .	382	229	0	10	6
08/13/2009	22.8	37,319	1,638	73.3	20	448	269	0	14	8
08/14/2009 08/15/2009	17.6 24.0	26,874 41,311	1,531 1,721	68.5 77.0	25 16	444 392	266 235	0	19 11	11 6
08/16/2009	24.0	. 39,181	1,633	73.0	20	478	287	0	14	8
08/17/2009	24.0	37,247	1,552	69.4	24	577	346	0	18	11
08/18/2009 08/19/2009	16.5 24.0	23,838 42,684	1,449 1,778	64.8 79.5	. 31 14	511 347	307 208	0	25 9	15 · 6
08/19/2009	24.0 23.4	42,684 40,921	1,778	79.5 78.1	15	347 362	208 217	. 0	9 10	6
08/21/2009	16.9	25,363	1,498	67.0	27	465	279	0	21	13
08/22/2009	24.0	38,697	1,612	72.1	21	501	301	0	15	9
08/23/2009 08/24/2009	22.1 17.0	36,203 28,748	1,637 1,691	73.2 75.6	20 17	437 · 297	262 178	0 0	14 12	8 7
08/24/2009	24.0	43,743	1,823	81.5	13	317	190	0	8	5
08/26/2009	22.7	37,807	1,668	74.6	18	417	250	0	13	8
08/27/2009 08/28/2009	16.7 24.0	28,331 42,969	1,698 1,790	76.0 80.1	17 14	287 339	172 203	0 0	12 9	7 5
08/28/2009	24.0 23.0	42,969 38,074	1,790	74.1	, 19	433	260 260	0	9 13	5 8
08/30/2009	17.3	29,850	1,727	77.3	16	279	167	0	11	6
08/31/2009	24.0	41,068	1,711	76.5	17	401	241	0	11	7



TABLE 4 2009 VOC Emissions Based on Load Varying Emissions Profile

		2009 CI	EM Data		Using Current (Combustion Syst	em Emissions Profile	Using LLT En	nissions Profile	
	Operating Hours	Daily Heat Input	Heat Input Rate	Load		olled VOC ^a	Controlled VOCb	, -	olled VOC°	Controlled VOC ^b
Day	(hrs/day)	(MMBtu/yr)	(MMBtu/hr)	(%)	(lb/hr)	(lb/day)	(lb/day)	(lb/hr)	(lb/day)	(lb/day)
09/01/2009	23.2	39,370	1,701	76.1	17	396	238	0	11	7
09/02/2009	17.2	27,578	1,603	71.7	21	367	220	.0	15	9
09/03/2009	24.0	38,916	1,621	72.5	20	490	294	0	14	9
09/04/2009	23.5	40,269	1,714	76.6	17	391	234	Ö	11	7
09/05/2009	16.7	24,260	1,455	65.1	31	510	306	Ö	24	15
09/06/2009	24.0	40,794	1,700	76.0	17	411	247	0	11	7
09/07/2009	22.2	36,122	1,629	72.8	20	446	268	0	14	8
09/08/2009	17.8	31,747	1,789	80.0	14	252	151	0	9	5
09/09/2009	24.0	44,885	1,870	83.6	12	288	173	0	7	J 4
09/10/2009	24.0	46,622	1,943	86.9	10		150	0	6	4
					11	250		0	6	4
09/11/2009	24.0	46,326	1,930	86.3		256	154	•	-	4
09/12/2009	24.0	45,216	1,884	84.3	12	280	168	0	7	4
09/13/2009	24.0	41,894	1,746	78.1	16	373	224	0	10	6
09/14/2009	24.0	45,474	1,895	84.7	11	274	165	0	7	4
09/15/2009	24.0	42,145	1,756	78.5	15	364	219	0	10	6
09/16/2009	24.0	44,757	1,865	83.4	12	291	175	0	7	4
09/17/2009	24.0	44,670	1,861	83.2	12	293	176	0	7	4
09/18/2009	24.0	42,771	1,782	79.7	14	345	207	0	9	5
09/19/2009	23.6	38,642	1,636 .	73.2	20	467	280	0	14	8
09/20/2009	16.7	26,560	1,589	71.0	22 ·	369	221	Ó	16	10
09/21/2009	24.0	42,637	1,777	79.5	15	349	209	0	9	6
09/22/2009	24.0	42,709	1,780	79.6	14	347	208	0	9	6
09/23/2009	24.0	44,395	1,850	82.7	13	300	180	0	8	5
09/24/2009	24.0	41,573	1,732	77.5	16	383	230	0	10	6
09/25/2009	21.6	37,678	1,744	78.0	16	336	202	0	10	6
09/26/2009	17.7	29,523	1,668	74.6	18	325	195	0	13	8
09/27/2009	20.9	37,750	1,811	81.0	14	282	169	Ō	. 8	5
09/28/2009	19.5	33,828	1,739	77.8	16	306	184	Õ	10	6
09/29/2009	24.0	44,278	1,845	82.5	13	303	182	0	8	5
09/30/2009	24.0	42,750	1,781	79.7	14	345	207	0	9	· 6
10/01/2009	21.0	36,288	1,730	77.4	16	336	202	0	11	6
10/01/2009	16.6		1,650	73.8	19			0	13	8
		27,359				317	190			
10/04/2009	24.0	42,607	1,775	79.4	15	350	210	0	9	6
10/05/2009	24.0	44,733	1,864	83.4	12	292	175	0	7	4
10/06/2009	24.0	43,930	1,830	81.9	13	312	187	0	8	5
10/07/2009	24.0	44,697	1,862	83.3	12	293	176	0	7	4
10/08/2009	24.0	47,148	1,964	87.9	10	240	144	0	6	3
10/09/2009	24.0	45,735	1,906	85.2	11	269	161	0	7	· 4
10/10/2009	24.0	42,945	1,789	0.08	14	340	204	0	9	5
10/11/2009	24.0	42,255	1,761	78.7	15	361	216	0	10	6
10/12/2009	24.0	44,898	1,871	83.7	. 12	288	173	0	7	4
10/13/2009	24.0	43,355	1,806	80.8	14	328	197	0	9	5
10/14/2009	24.0	43,791	1,825	81.6	13	316	189	0	8	5
10/15/2009	24.0	42,085	1,754	78.4	15	366	220	0	10	6
10/16/2009	24.0	42,766	1,782	79.7	14	345	207	0	9	5
10/17/2009	2.9	3,511	1,202	53.8	62	182	109	1	60	36
11/16/2009	8.6	8,106	943	42.2	155	1,329	798	5	194	116
11/17/2009	23.2	39,890	1,717	76.8	17	383	230	Ö	11	7
11/21/2009	21.0	32,322	1,539	68.8	25	521	313	0	18	11
11/21/2009	24.0	40,146	1,673	74.8	18		262	0	12	7
						437				
11/23/2009	24.0	41,376	1,724	77.1	16	390	234	0	11	6
11/24/2009	8.9	11,558	1,296	57.9	47	421	252	1	42	25
						Total lbs =	51,737			1,850
						Total TPY =	26			0.9

Checked by: Reviewed by:



^a Calculated using Y = 177749982.75 $X^{-3.73}$, where "X" is load (see Figure 1). ^b Using 40-percent control due to the oxidation catalyst system. ^c Calculated using Y = 11745575193.07 $X^{-5.79}$, where "X" is load (see Figure 1).

TABLE 5
VOC Emissions Based on Load Varying Emissions Profile

	0	2008 CEN			Using Current	Combustion Sys	tem Emissions Profile	Using	LLT Emissio	ns Profile Controlled
	Operating Hours	Daily Heat Input	Heat Input Rate	Load		olled VOC ^a	Controlled VOC ^b		lled VOC°	AOC _P
Day	(hrs/day)	(MMBtu/yr)	(MMBtu/hr)	(%)	. (lb/hr)	(lb/day)	(lb/day)	(lb/hr)	(lb/day)	(lb/day)
01/01/2008 01/02/2008	8.2 24.0	7,920 32,734	968 1,364	43.3 61.0	140 39	1,144 935	687 561	4 1	. 170 33	3 1
01/03/2008	13.3	22,778	1,709	76.4	17	224	134	0	11	9
01/09/2008	14.0	15,623 39,992	1,116 1,666	49.9 74.5	82 18	1,153	692 266	2 0	86 13	1 10
01/10/2008 01/11/2008	24.0 1.0	1,034	1,089	48.7	18 90	443 86	51	2	13 97	3
03/03/2008	19.2	26,792	1,394	62.3	36	690	414	0	30	1
03/04/2008 03/14/2008	23.2 3.2	37,404 2,586	1,614 813	72.2 36.4	21 268	482 853	289 512	0 1 1	15 393	39 2
03/15/2008	24.0	37,287	1,554	69.5	24	575	345	0	18	1
03/16/2008	24.0	48,161	2,007	89.7	9	221	133	0	5	1
03/17/2008 03/18/2008	24.0 24.0	42,088 41,782	1,754 1,741	78.4 77.9	15 16	366 376	220 226	0	10 10	1 1
03/19/2008	24.0	41,976	1,749	78.2	15	370	222	Ŏ	10	i
03/20/2008	24.0	43,305	1,804	80.7	14	329	198	0 0	9	1
03/21/2008 03/22/2008	24.0 24.0	39,752 36,895	1,656 1,537	74.1 68.8	19 25	453 598	272 359	0	13 19	2 1
03/23/2008	23.1	37,602	1,628	72.8	20	465	279	0	14	3
03/29/2008 03/30/2008	24.0 24.0	33,505 40,589	1,396 1,691	62.4 75.6	36 17	857 419	514 251	0 0	29 12	1
03/31/2008	24.0 24.0	42,801	1,783	79.8	14	344	206	0	9	1
04/01/2008	18.4	32,631	1,773	79.3	. 15	269	162	0	9	3
04/02/2008 04/03/2008	9.8 24.0	13,952 41,284	1,424 1,720	63.7 76.9	33 16	325 393	195 236	0 0	27 11	1
04/04/2008	24.0	42,416	1,767	79.0	15	356	213	0	10	1
04/05/2008	24.0	42,505	1,771	79.2	15	353	212	0	9	1
04/06/2008 04/07/2008	24.0 24.0	40,001 39,257	1,667 1,636	74.5 73.2	18 20	443 475	266 285	0 0	13 14	1 2
04/08/2008	24.0	37,804	1,575	70.4	23	546	328	0	17	1
04/09/2008	24.0	39,925	1,664	74.4	19	446	267	0	13	1
04/10/2008 04/11/2008	24.0 24.0	41,196 43,045	1,716 1,79 4	76.8 80.2	17 14	397 337	238 202	0 0	11 9	1 2
04/12/2008	21.8	34 ,635	1,587	71.0	22	483	290	Ö	16	5
04/19/2008	14.8	18,745	1,267	56.6	51	760	456	1	47	1
04/20/2008 04/21/2008	24.0 24.0	38,777 41,720	1,616 1,738	72.3 _. 77.7	21 16	497 378	298 227	0 0	15 10	1 5
04/22/2008	4.5	5,544	1,246	55.7	55	243	146	1	51	2
04/25/2008	19.4	29,752	1,534	68.6	25	488	293	0	19	1
04/26/2008 04/27/2008	24.0 4.3	41,012 5,452	1,709 1,259	76.4 56.3	17 52	403 227	242 136	1	11 48	5 7
06/16/2008	18.3	21,410	1,170	52.3	69	1,263	758	i	69	1
06/17/2008	21.6	36,188	1,673	74.8	18	393	236	0	12	3 2
06/18/2008 06/19/2008	18.8 22.9	25,861 36,777	1,378 1,607	61.6 71.9	38 21	704 483	422 290	Ó	31 15	2
06/20/2008	17.4	26,972	1,555	69.5	24	415	249	Ö	18	4
06/21/2008	24.0	32,082	1,337	59.8	42	1,008	605	1 0	36	3
06/22/2008 06/23/2008	17.2 19.6	23,771 31,945	1,384 1,632	61.9 73.0	37 20	633 391	380 235	0	31 14	1
06/24/2008	23.5	38,264	1,627	72.8	20	475	285	Ö	14	2
06/25/2008 06/26/2008	17.6 24.0	27,445 36,070	1,561 1,503	69.8 67.2	24 27	414 651	248 391	0	17 21	2
06/27/2008	24.0	41,055	1,711	76.5	17	651 402	241	0	11	1
06/28/2008	24.0	40,410	1,684	75.3	18	426	256	0	12	2
06/29/2008 06/30/2008	22.2 15.9	35,026 22,680	1,581 1,431	70.7 64.0	22 33	497 516	298 310	0 0	16 26	3 2
07/01/2008	24.0	36,592	1,525	68.2	26	617	370	0	19	2
07/02/2008	21.9	33,881	1,546	69.1	24	536	321	0	18	3
07/03/2008 07/04/2008	14.0 21.0	20,218 33,411	1, 444 1,591	64.6 .71.2	31 22	44 1 461	264 276	0	25 16	2 61
07/05/2008	1.5	1,127	742	33.2	378	575	345	18	611	2
07/07/2008	19.8	30,023	1,519	67.9	-26	516	310	0	20	2
07/08/2008 07/09/2008	22.1 17.4	35,042 28,948	1,588 1,661	71.0 74.3	22 19	488 326	293 195	0	16 13	1 1
07/10/2008	22.7	37,606	1,654	74.0	19	431	259	Ö	13	2
07/11/2008	14.8	21,495 577	1,449	64.8	31	461 878	276	0	25	185
07/17/2008 07/18/2008	1.0 24.0	577 32,936	588 1,372	26.3 61.4	896 38	878 914	527 548	70 1	1,850 32	3 1
07/19/2008	20.9	37,109	1,774	79.3	15	306	183	ò	9	1
07/20/2008 07/21/2008	19.5 23.3	34,243 40,300	1,761 1,727	78. 7 77.3	15 16	292 377	175 226	0 0	10 11	1 2
07/21/2008	23.3 17.0	40,300 25,147	1,727	66.2	29	487	226 292	0	22	2
07/23/2008	22.3	35,565	1,593	71.2	22	488	293	0	16	2
07/24/2008 07/25/2008	17.0 20.6	24,704 31,979	1,453 1,556	65.0 69.6	31 24	523 490	314 294	0 0	24 18	2 2
07/28/2008	19.3	29,990	1,558	69.7	24	457	274	0	17	2
07/29/2008	22.4	35,889	1,602	71.7	21	479	287	0	15	1
07/30/2008 08/01/2008	10.7 3.0	17,566 2,573	1,642 866	73.4 38.7	20 212	209 629	125 377	0 7	14 290	29 1
08/02/2008	24.0	39,723	1,655	74.0	19	454	273	0	290 13	1
08/03/2008	23.7	41,831	1,767	79.0	15	352	211	0	10	1
08/04/2008 08/05/2008	16.3 23.4	26,538 40,877	1,633 1,751	73.0 78.3	20 15	323 359	194 215	0 0	1 4 10	1 1
08/06/2008	17.0	28,641	1,688	75.5	18	299	179	Ō	12	1
08/07/2008 08/08/2008	24.0 21.8	43,752 35,094	1,823 1,610	81.5 72.0	13 21	317 458	190 275	0	8 15	1 2
08/09/2008	17.0	25,825	1,519	67.9	26	443	275 266	0	20	2
08/10/2008	21.5	32,904	1,534	68.6	25	539	323	0	19	1
08/11/2008	15.8	25,424 33,270	1,614	72.2 69.6	· 21	327 509	196 306	0	15 18	2
08/12/2008 08/13/2008	21.4 17.0	33,270 27,414	1,556 1,613	69.6 72.1	24 21	509 355	306 213	0 0	18 15	1 2
08/14/2008	21.5	34,251	1,595	71.3	22	466	280	0	16	1
08/15/2008	18.0	29,444	1,636	73.2	20	356 664	214	0	14	2
08/16/2008 08/17/2008	23.3 17.0	34,497 27,569	1,482 1,625	66.3 72.7	29 20	664 344	399 207	0 0	22 14	1 3
08/18/2008	20.0	27,893	1,393	62.3	36	722	433	Ō	.30	2
08/19/2008	19.0	29,847	1,571	70.3	23 16	437	262	0	17	1
08/20/2008 08/21/2008	24.0 24.0	41,222 43,176	1,718 1,799	76.8 80.5	16 14	396 333	237 200	0 0	11 9	1 1
08/22/2008	24.0	48,193	2,008	89.8	9	221	133	Ö	5	1
08/23/2008	24.0	44,378	1,849	82.7	13	300	180		8	



TABLE 5 VOC Emissions Based on Load Varying Emissions Profile

	Operation	2008 CE	M Data Heat Input		Using Current	Combustion Sys	tem Emissions Profile	_ Using	g LLT Emissi	ions Profile Controlled
	Operating Hours	Daily Heat Input	Rate	Load	Uncontro	olled VOC ^a	Controlled VOC ^b	Uncontro	olled VOC	VOC
Day	(hrs/day)	(MMBtu/yr)	(MMBtu/hr)	(%)	(lb/hr)	(lb/day)	(lb/day)	(lb/hr)	(lb/day)	(lb/day)
8/25/2008	23.8	44,053	1,853	82.8	12	296	177	0.	8	1
8/26/2008	16.5	28,238	1,713	76.6	17	274	164	0	11	1
8/27/2008	24.0	42,655	1,777	79.5	15	348	209	0	9	1
8/28/2008	23.2	38,098	1,641	73.4	20	454	272	0	14	1
8/29/2008	16.5	27,874	1,692	75.7	17	287	172	0	12	3
8/30/2008	23.1	31,811	1,379	61.7	37	863	518	1	31	5
8/31/2008	16.8	21,260	1,264	56.5	52	870	522	1	47	2
9/01/2008	23.8	35,960	1,509	67.5	27	637	382	0	20	2
9/02/2008	16.9	26,524	1,567	70.1	23	393	236	0	17	2
9/03/2008	24.0	37,829	1,576	70.5	23	545	327	0	16	1
9/04/2008	16.1	26,020	1,621	72.5	20	328	197	0	14	1
9/05/2008	22.9	37,395	1,637	73.2	20	451	271	0	14	1
9/06/2008	16.6	27,260	1,642	73.4	19	324	194	0	14	1
09/07/2008	24.0	41,454 41:171	1,727	77.2 70.0	16 14	387	232	0	11	1
9/08/2008	23.1	41,171	1,786	79.9	14 17	328	197 176	0	9	1
09/09/2008	17.0	28,732	1,695	75.8	17	293	176	0	12 15	1
09/10/2008	22.7 17.6	36,662 28,114	1,617 1,600	72.3 71.6	21	468	281	0 0	15 15	2
)9/11/2008)9/12/2008	23.2	41,118	1,771	71.6	21	377	226	0	15	1
)9/12/2008)9/13/2008	23.2 17.0	29,311	1,774	7 9 .2 77.1	15 16	342 . 276	205	0	9	1
9/14/2008	23.8	40,250	1,693	75.7			166	0	11	1
9/14/2008	16.5	28,796	1,743	78.0	17 16	413 258	248 155	0	12	1
9/16/2008	23.8	44,085	1,851	82.8	12	297	178	0	10	1
9/17/2008	16.5	27,284	1,652	73.9	19	315	189	0	8 13	1
9/18/2008	22.7	39,935	1,757	78.6	15	344	207	0	10	1
9/19/2008	16.0	26,780	1,674	74.9	18	290	174	0	12	1
9/20/2008	23.1	42,670	1,850	82.7	13	289	173	0	8	1
9/21/2008	17.0	29,646	1,744	78.0	16	265	159	0	10	1
9/22/2008	21.7	37,368	1,724	77.1	16	353	212	0	11	
9/23/2008	18.3	30,867	1,690	75.6	18	320	192	Ö	12	1
9/24/2008	22.8	38,723	1,700	76.0	17	390	234	0	11	1
9/27/2008	21.0	35,673	1,699	76.0	17	361	216	ő	12	· 1
09/28/2008	24.0	43,229	1,801	80.6	14	331	199	ő	9	1
09/29/2008	24.0	47,255	1,969	88.1	10	238	143	ŏ	6	1
09/30/2008	24.0	44,872	1,870	83.6	12	288	173	Ö	7	1
10/01/2008	24.0	44,023	1,834	82.0	13	310	186	ŏ	8	i
10/02/2008	23.9	41,397	1,732	77.5	16	382	229	Ö	10	1
10/03/2008	16.4	29,005	1,769	79.1	15	242	145	Ō	10	1
10/04/2008	24.0	41,600	1,733	77.5	16	382	229	Ŏ	10	2
10/05/2008	24.0	38,521	1,605	71.8	21	509	306	Ö	15	1
10/06/2008	24.0	45,059	1,877	84.0	12	284	170	Ö	7	1
10/07/2008	24.0	46,690	1,945	87.0	10	249	149	ŏ	6	1
10/08/2008	24.0	45,350	1,890	84.5	12	277	166	Ō	7	1
0/09/2008	24.0	44,747	1,864	83.4	12	291	175	Ō	7	1
10/10/2008	24.0	44,645	1,860	83.2	12	294	176	0	7	1
10/11/2008	24.0	44,988	1,874	83.8	12·	286	171	0	7	1
10/12/2008	24.0	45,376	1,891	84.6	12	277	166	0	7	1
10/13/2008	24.0	46,989	1,958	87.6	10	243	146	0	6	1
10/14/2008	24.0	45,496	1,896	84.8	11	274	164	0	7	1
10/15/2008	24.0	43,251	1,802	80.6	14	331	198	0	9	1
10/16/2008	24.0	44,246	1,844	82.5	13	304	182	0	8	1
10/17/2008	24.0	45,212	1,884	84.2	12	280	168	0	7	1
10/18/2008	24.0	45,964	1,915	85.7	11	264	158	0	6	1
10/19/2008	24.0	39,419	1,642	73.5	19	467	280	0	14	. 1
10/20/2008	24.0	41,024	1,709	76.4	17	403	242	0	11	1
10/21/2008	24.0	43,245	1,802	80.6	14	331	199	0	9	1
10/22/2008	24.0	41,584	1,733	77.5	16	383	230	0	10	1
10/23/2008	24.0	42,346	1,764	78.9	15	358	215	0	10	1
10/24/2008	22.4	41,066	1,835	82.1	- 13	288	173	0	8	25
12/11/2008	7.4	6,589	894	40.0	188	1,388	833	6	249	4
12/16/2008	17.7	23,200	1,313	58.7	45	793	476	. 1	40	0

Total TPY =

22

Checked by: _ Reviewed by: _

0.3



^a Calculated using Y = 177749982.75 $X^{-3.73}$, where "X" is load (see Figure 1). ^b Using 40-percent control due to the oxidation catalyst system. ^c Calculated using Y = 11745575193.07 $X^{-5.79}$, where "X" is load (see Figure 1).

TABLE 6
COMPARISON OF 2008-2009 CO AND VOC EMISSIONS CALCULATED USING THE LOW LOAD
TURNDOWN SYSTEM EMISSIONS PROFILE AND THE INITIAL PERMIT APPLICATION EMISSIONS PROFILE

Year	Carbon Monoxide (CO)		Volatile Organic Compounds (VOC)	
	Using Low Load Turndown Emissions Profile ^a (TPY)	Using Current Combustion System Emissions Profile ^b (TPY)	Using Low Load Turndown Emissions Profile ^a (TPY)	Using Current Combustion System Emissions Profile ^b (TPY)
2009	15	98	0.9	26
2008	14	75	0.3	22

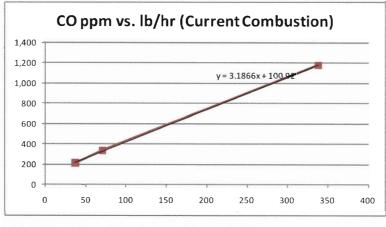
^a Estimated using the CEM data for unit load and the equation of the trendline (power) among the load versus mass emissions data points from Table 1. Trendlines are shown in Figure 1. Detailed emissions calculation are shown in Tables 2 through 5.

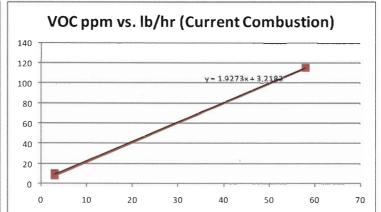
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Reviewed	by:	

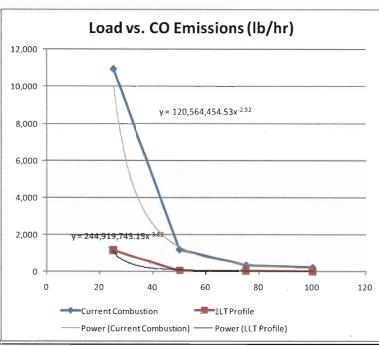


FIGURES

March 2010 093-87775







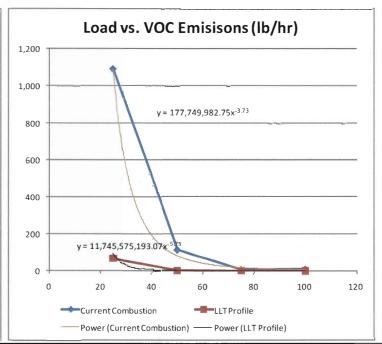


Figure 1 CO and VOC Emission Profiles for the Current Combustion System and the LLT System

Source: Golder, 2010.



ATTACHMENT A

SIEMENS-WESTINGHOUSE LETTER

SIEMENS Westinghouse

September 28, 2001

Mr. Steve Marshall
City of Lakeland, Florida
Department of Electric & Water Utilities
501 East Lemon Street
Lakeland, Florida 33801-5069

SW-LCC-0112 File: 042

Subject:

City of Lakeland - McIntosh #5 Combined Cycle Project

Part Load Emissions Estimates during Combined Cycle Commissioning

Dear Steve:

This is in response to the e-mail request (Mr. Torn Trickey dated 9/14/01) for part load (20%) emissions data for W501G Combustion Turbine at the McIntosh #5 facility.

At this time, we do not have good start-up emissions data for a W501G. However, we can provide part load (20%) emission data (estimated) on a W501 F as follows:

Parameter	Concentration, pprovd @ 15% O ₂		
NOx	45		
CO	4000		
ÇO VOC	665		
Particulate Metter	Not available		

Please note that this data is estimated and is not guaranteed and we are unable to determine if the data is directly applicable for a W501G installation. However, the data provided is higher and more reliable than the data we do have from the Lakeland SC where the NOX meter pegged at 1,000 at the lower load points.

We are hopeful, however, that the data provided will allow you to proceed with your emissions variance request to the FDEP.

Please feel free to call us if additional discussion is required.

Mould

Regards,

Andy Mould Project Manager

Sigmens Westinghouse Power Corporation A Sigmens Company

4400 Alafaya Traji Orlando, FL 32626-2399 5W100-0112

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa. Asia, Australasia, Europe, North America and South America.

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