Golder Associates

February 16, 2010

RECEIVED 0389503

FEB 19 2010

BUREAU OF AIR REGULATION

DEP/DARM
North Permitting Section
Division of Air Resource Management
2600 Blair Stone Road MS 5500
Tallahassee, Florida 32399-2400

Attention: Mr. Al Linero, P.E.

RE: LAKE COGENERATION PLANT, FACILITY ID NO. 0694801
MINOR SOURCE AIR CONSTRUCTION PERMIT APPLICATION
PROPOSED INSTALLATION OF AN OXIDATION CATALYST
0694801-612-AC

Attached are one original and three copies of an application for a minor source air construction permit for the Lake Cogeneration Plant (0694801), located in Umatilla, Lake County, Florida. Specifically, the application is for the installation of oxidation catalysts for control of emissions of carbon monoxide.

Lake Cogeneration looks forward to working with you on this permitting effort. If you would like to discuss any issues regarding this application, please contact Mr. Tom Grace of Caithness Energy at (917) 472-4593 or me at (813) 287-1717 in Tampa.

Sincerely,

GOLDER ASSOCIATES INC.

Scott Osbourn, PE
Associate and Senior Consultant

Enclosure

Cc: Caroline Shine, DEP Central District Office
Jim Miller, Lake Cogen
Tom Grace, Caithness Energy

SO/DL/ev

Golder Associates Inc.
5100 W. Lemon Street, Suite 114
Tampa, FL 33609 USA
Tel: (813) 287-1717 Fax: (813) 287-1716 www.golder.com

Department of Environmental Protection

Division of Air Resource Management

RECEIVED
FEB 19 2010
BUREAU OF AIR REGULATION

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

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

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

Air Operation Permit – Use this form to apply for:

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

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **Lake Cogeneration Ltd.**	
2. Site Name: **Lake Cogeneration**	
3. Facility Identification Number: **0694801**	
4. Facility Location... Street Address or Other Locator: **39001 Golden Gem Dr.** City: **Umatilla** County: **Lake** Zip Code: **32784**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Thomas Grace**
2. Application Contact Mailing Address... Organization/Firm: **Caithness Generation Services** Street Address: **565 Fifth Ave., 29th Floor** City: **New York** State: **NY** Zip Code: **10017**
3. Application Contact Telephone Numbers... Telephone: **(917) 472 - 4593** ext. Fax: **(732) 817 - 0101**
4. Application Contact E-mail Address: **tgrace@caithnessenergy.com**

Application Processing Information (DEP Use)

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

APPLICATION INFORMATION

Purpose of Application

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

Air Construction Permit

[X] 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

The purpose of this application for a minor source air construction permit is for the installation of an oxidation catalyst control system. In addition, it is requested that a footnote be added to the CO emission limits in Condition A.6 of the current TV permit, indicating that the limits are corrected to 15 percent O_2. This is consistent with other similar BACT determinations for CO and may have been implied in the current permit, although not specifically addressed.

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
003	CT with HRSG/DB		
004	CT with HRSG/DB		

Application Processing Fee

Check one: ☐ Attached - Amount: $_____ ☒ Not Applicable

APPLICATION INFORMATION

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name : **James Miller, Plant Manager**

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **Lake Cogeneration Ltd.**
   Street Address: **39001 Golden Gem Dr.**
   City: **Umatilla** State: **FL** Zip Code: **32784**

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(352) 669-3288** ext. Fax: **(352) 669-3188**

4. Owner/Authorized Representative E-mail Address: **jmiller@caithnessenergy.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.

Signature

2/16/10
Date

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: **Scott H. Osbourn**
   Registration Number: **57557**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Golder Associates Inc.****
   Street Address: **5100 Lemon Street, Suite 114**
   City: **Tampa** State: **FL** Zip Code: **33609**
3. Professional Engineer Telephone Numbers...
   Telephone: **(813) 287 - 1717** ext. Fax: **(813) 287 - 1716**
4. Professional Engineer E-mail Address: **sosbourn@golder.com**
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.

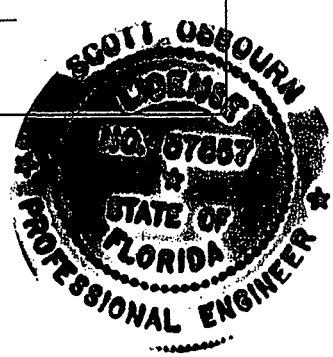
(3) If the purpose of this application is to obtain a Title V air operation permit (check here ☐, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application 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 ☒, 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 ☐, 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.

Signature Date 2/15/10

(seal)



* Attach any exception to certification statement.

** **Board of Professional Engineers Certificate of Authorization #00001670**

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **434.00** North (km) **3198.80**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **28° 55' 02"** Longitude (DD/MM/SS) **81° 40' 37"**	
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **49**	6. Facility SIC(s): **4931**
7. Facility Comment : **Lake Cogeneration facility consists of two GE LM-6000 combustion turbine units (CTs), each unit equipped with a supplementary fired duct burner (DB) and exhausting through Heat Recovery Steam Generator (HRSG) stacks. The CTs have dual fuel (natural gas and distillate fuel) capability.**			

Facility Contact

1. Facility Contact Name: **Thomas Grace, Mgr. E,H&S**
2. Facility Contact Mailing Address... Organization/Firm: **Lake Cogeneration L.P., c/o Caithness** Street Address: **565 Fifth Ave., 29th Floor** City: **New York** State: **NY** Zip Code: **10017**
3. Facility Contact Telephone Numbers: Telephone: **(917) 472 - 4593** ext. Fax: **(732) 817 - 0101**
4. Facility Contact E-mail Address: **tgrace@caithnessenergy.com**

Facility Primary Responsible Official

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

1. Facility Primary Responsible Official Name: **James Miller, Plant Manager**
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: **Lake Cogeneration Ltd.** Street Address: **39001 Golden Gem Dr.** City: **Umatilla** State: **FL** Zip Code: **32784**
3. Facility Primary Responsible Official Telephone Numbers... Telephone: **(352) 669 - 3288** ext. Fax: **(352) 669 - 3188**
4. Facility Primary Responsible Official E-mail Address: **jmiller@caithnessenergy.com**

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))	
12. Facility Regulatory Classifications Comment:	

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

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:_____ [X] Previously Submitted, Date: 11/27/06
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:_____ [X] Previously Submitted, Date: : 11/27/06
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:_____ [X] Previously Submitted, Date: : 11/27/06

Additional Requirements for Air Construction Permit Applications

1.	Area Map Showing Facility Location: ☐ Attached, Document ID:_____ [X] Not Applicable (existing permitted facility)
2.	Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): [X] Attached, Document ID: LC-FI
3.	Rule Applicability Analysis: [X] Attached, Document ID: LC-FI
4.	List of Exempt Emissions Units: ☐ Attached, Document ID:_____ [X] Not Applicable (no exempt units at facility)
5.	Fugitive Emissions Identification: ☐ Attached, Document ID:_____ [X] Not Applicable
6.	Air Quality Analysis (Rule 62-212.400(7), F.A.C.): ☐ Attached, Document ID:_____ [X] Not Applicable
7.	Source Impact Analysis (Rule 62-212.400(5), F.A.C.): ☐ Attached, Document ID:_____ [X] Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): ☐ Attached, Document ID:_____ [X] Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): ☐ Attached, Document ID:_____ [X] Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): ☐ Attached, Document ID:_____ [X] Not Applicable

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)

Additional 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:_____
   ☒ Not Applicable (not an Acid Rain source)

   Phase II NO_X Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

   New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):
   ☐ Attached, Document ID:_____ ☐ Previously Submitted, Date:_____
   ☒ Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):
   ☐ Attached, Document ID:_____ ☒ Previously Submitted, Date: **5/16/08**
   ☐ 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)

Additional Requirements Comment

ATTACHMENT LC-FI

Regulatory Applicability Analysis for Oxidation Catalyst

This attachment addresses the following items associated with this project:

- Project Description
- Regulatory Review
- Emission Estimates
- Requested Permit Conditions

PROJECT DESCRIPTION

The Lake Cogeneration facility consists of two GE LM-6000 combustion turbine units (CTs), each unit equipped with an inlet chiller and a supplementary fired duct burner (DB) and exhausting through Heat Recovery Steam Generator (HRSG) stacks. The CTs have dual fuel (natural gas and distillate fuel) capability. Both CTs recently underwent a SPRay INTercooling (SPRINT) upgrade for enhanced efficiency. This proposed modification would be for the installation of an oxidation catalyst in the HRSG associated with each of the two CTs. The oxidation catalyst is proposed to be supplied by EmeraChem and a vendor specification sheet is provided as Figure 1 to this Attachment.

Carbon Monoxide (CO) is controlled or reduced by the use of a catalytic oxidation system, which is effectively a passive control system. The catalyst (stainless steel foil coated with calcined alumina with platinum metal) enhances the chemical reaction between oxygen and carbon monoxide and forms carbon dioxide as the end product. This reaction generally provides for emission control in the range of 50 to 70%, depending on the exhaust gas temperature. The catalyst normally operates at a temperature around 700° F with corresponding CO removal efficiencies of approximately 70%. This system is designed and certified by the manufacturer to operate while the plant is burning either natural gas or new No. 2 diesel fuel oil.

A plant operator occupies the plant control room 24 hours per day, which allows the plant personnel to monitor two key catalyst operating parameters. Namely, catalyst inlet temperature and pressure drop across the catalyst bed. A high temperature alarm is proposed to alert the operator if the catalyst inlet temperature becomes excessive to protect the bed from thermal damage, and a high-pressure alarm sounds if the pressure drop across the catalyst bed becomes excessive. The pressure reading serves two purposes: to ensure that there is airflow across the bed, thus verifying that the system is operating, and to alert the plant operator if a possible plugging or fouling has occurred.

REGULATORY REVIEW

Regulatory Categories

Title III: The facility is not a major source of hazardous air pollutants (HAP).

Title IV: The facility has no units subject to the acid rain provisions of the Clean Air Act.

Title V: The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.

PSD: The facility is a PSD-major source of air pollution in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility operates units subject to the New Source Performance Standards in 40 CFR 60.

CAIR: The facility is subject to the Clean Air Interstate Rule (CAIR) per Rule 62-296.470, FAC.

CAM: Compliance Assurance Monitoring (CAM) may apply to the two CT units at the facility, as they are using oxidation catalysts for CO control and are not equipped with CO CEMS as a continuous compliance determination method.

State Regulations

This project is subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The Florida Statutes authorize the Department of Environmental Protection to establish rules and regulations regarding air quality as part of the Florida Administrative Code (F.A.C.). This project is subject to the applicable rules and regulations defined in the following chapters of the Florida Administrative Code.

Chapter Description

62-4 Permitting Requirements

62-204 Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference

62-210 Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms

62-212 Preconstruction Review, PSD Review and BACT, and Non-attainment Area Review and LAER

62-213 Title V Air Operation Permits for Major Sources of Air Pollution

62-296 Emission Limiting Standards

62-297 Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures

Federal Regulations

This project is also subject to the applicable federal provisions regarding air quality as established by the EPA in the following sections of the Code of Federal Regulations (CFR).

Part 60 Subpart A - General Provisions for NSPS Sources

NSPS Subpart KKKK - Stationary Gas Turbines

Applicable Appendices

General PSD Applicability

The Department regulates major air pollution facilities in accordance with Florida's Prevention of Significant Deterioration (PSD) program, as defined in Rule 62-212.400, F.A.C. A PSD preconstruction review is required in all areas currently in attainment with the state and federal Ambient Air Quality Standards (AAQS) or areas designated as "unclassifiable" for a given pollutant. A new facility is considered "major" with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant, or

- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD Major Facility Categories (Table 62-212.400-1, F.A.C.), or

- 5 tons per year of lead.

For new projects at PSD-major facilities, each PSD-regulated pollutant is reviewed for applicability based on emissions thresholds known as the Significant Emission Rates listed in Table 62-212.400-2, F.A.C. Pollutant emissions from a project exceeding these rates are considered "significant" and the applicant must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant and evaluate the air quality impacts. Although a facility may be "major" with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

The first aspect of the regulatory review involves the classification of the change from a programmatic perspective. The facility is considered an existing major source for the Prevention of Significant Determination (PSD) regulations as the permitted potential emissions for the site exceed the 100 ton per year threshold for both oxides of nitrogen (NO_x) and carbon monoxide (CO). Hence, the projected emissions increases (past actual to future projected actual) would typically be compared to the PSD Significant Emission Rates (SERs).

EMISSION ESTIMATES

The proposed modification will significantly reduce emissions of CO and have the collateral benefit of also reducing emissions of VOCs, and other various organic HAPs. The proposed modification will not result in the increase in any other regulated pollutants. In addition, this modification does not restore any lost capacity to the generating units or provide any economic benefit that would incentivize the units to operate at a higher capacity as a result of the modification. If anything, the facility will incur additional capital and annual operating costs as a result of this modification. The primary justification for this project is to allow the facility to continue to provide the Department with reasonable assurance that the existing permitted CO emission limit will continue to be achieved.

Another benefit is that the oxidation catalyst will provide for needed margin with respect to the CO permit limit, thus allowing the facility to optimize the combustion process to further reduce and minimize NOx. For example, the oxidation catalyst vendor specification sheet (provided as Figure 1) is based on an inlet (uncontrolled) CO emission rate as high as 70 ppmvd to account for further degradation of combustion performance, as well as the effect on CO due to optimization of NOx emissions.

Historical emissions of CO and VOCs from the Lake CoGen facility for the years 2004 through 2008 are summarized in Table 1 of this Attachment. These data were obtained from the Annual Operating Reports (AORs) submitted to the Florida Department of Environmental Protection (FDEP). These data are provided for informational purposes and are reflective of historical emission levels and operating trends. In addition, Table 2 provides a summary of recent CO emissions testing upon which these annual values are based. The future projected emission rates of all criteria pollutants are expected to be comparable to or less than these reported historical values, given adjustments related to demand growth.

Hence, it is our conclusion that PSD review is not required for this proposed modification project.

REQUESTED PERMIT CONDITIONS

As stated above, the primary justification for this project is to allow the facility to continue to provide the Department with reasonable assurance that the existing permitted CO emission limit will continue to be achieved. However, in order for the project to be implemented and provide the facility with necessary operational flexibility, it is imperative that the Department not revise (lower) the existing allowable

permitted limits provided in Condition A.6 of the current Title V permit. In addition, it is requested that a footnote be added to the CO emission limits in Condition A.6 of the current TV permit, indicating that the limits are corrected to 15 percent O_2. This is consistent with other similar BACT determinations for CO and may have been implied in the current permit, although not specifically addressed.

Figure 1

Oxidation Catalyst Vendor Specification Sheet

EmeraChem™
THE POWER OF CATALYSIS

100216-CAITHNESS-PASCO-LAKE-CO-70%-LM6000 5 YR

ZURN
CAITHNESS
PASCO
GE
LM6000

PARAMETER	Units	CASE 1	CASE 2	CASE 3	CASE 4
CASE DESCRIPTION		Full Load w/o DB	Full Load w/ DB 50%	Full Load w/ DB 100%	Full Load w/o DB
GENERAL INFORMATION	GT Load	100%	100%	100%	100%
GT Fuel Type		NG	NG	NG	#2 Oil
DB Fuel Type		NA	NG	NG	NA
Ambient Temp	°F	68	68	68	25
Temp at Catalyst	°F	630	670	700	630
EXHAUST CHARACTERISTICS FROM GT					
GT Flow	lb/hr	1,061,512	1,061,512	1,061,512	1,097,104
Gas Composition	% vol				
O2		12.66	12.66	12.66	13.47
H2O		11.61	11.61	11.61	7.80
N2		71.49	71.49	71.49	73.52
CO2		3.39	3.39	3.39	4.33
Ar		0.85	0.85	0.85	0.88
Total		100.00	100.00	100.00	100.00
MW	lb/lb-mole	27.99	27.99	27.99	28.56
Flow Rate (wet)	scfh	14,373,768	14,373,768	14,373,768	14,560,574
Flow Rate (dry)	scfh	12,705,620	12,705,620	12,705,620	13,424,878
O2 Concentration Dry	%	14.32	14.32	14.32	14.61
DB FLOW RATE	lb/hr	0	1,148	2,297	0
Fuel (HHV)	BTU/lb		20,996	20,996	
Fuel Input (*LHV*)	MMBtu/hr	0.0	21.7	43.4	0.0
Fuel Input (*HHV*)	MMBtu/hr	0.0	24.1	48.2	0.0
Fuel Input	scfh		27,200	54,400	
DUCT BURNER INPUT					
Fuel Input (*HHV*)	MMBtu/hr	0.00	24.11	48.22	0.00
Fuel Input	lb/hr	0	1,148	2,297	0
O2 Consumed	scfh	0	54,400	108,800	0
H2O produced	scfh	0	54,400	108,800	0
CO2 produced	scfh	0	27,200	54,400	0
DUCT BURNER CONTRIBUTION					
CO, lb/MMBTU, HHV			0.08	0.08	
VOC, lb/MMBTU, HHV			0.02	0.02	
CO, #/hr		0.000	1.929	3.858	0.000
VOC, #/hr		0.000	0.482	0.964	0.000
EXHAUST CHARACTERISTICS AT CATALYST INLET					
Exhaust Flow	lb/hr	1,061,512	1,062,660	1,063,809	1,097,104
Gas Composition	% vol				
O2		12.66	12.26	11.86	13.47
H2O		11.61	11.96	12.32	7.80
N2		71.49	71.35	71.22	73.52
CO2		3.39	3.57	3.75	4.33
Ar		0.85	0.85	0.85	0.88
Total		100.00	100.00	100.00	100.00
MW	lb/lb-mole	27.99	27.97	27.94	28.56
Flow Rate (wet)	scfh	14,373,768	14,400,968	14,428,168	14,560,574
	acfh	30,129,628	31,294,411	32,185,913	30,521,204
Flow Rate (dry)	scfh	12,705,620	12,678,420	12,651,220	13,424,878
O2 Concentration Dry	%	14.32	13.93	13.53	14.61

EmeraChem™
THE POWER OF CATALYSIS

100216-CAITHNESS-PASCO-LAKE-CO-70%-LM6000 5 YR

ZURN
CAITHNESS
PASCO
GE
LM6000

PARAMETER	Units	CASE 1	CASE 2	CASE 3	CASE 4
CASE DESCRIPTION		Full Load w/o DB	Full Load w/ DB 50%	Full Load w/ DB 100%	Full Load w/o DB
GENERAL INFORMATION	GT Load	100%	100%	100%	100%
GT Fuel Type		NG	NG	NG	#2 Oil
DB Fuel Type		NA	NG	NG	NA
Ambient Temp	°F	68	68	68	25
Temp at Catalyst	°F	630	670	700	630
CO FROM GT					
CO as ppmvd at 15% O2 (GT)		70.00	70.00	70.00	20.00
CO Flow (GT)	lb/hr	73.24	77.67	82.13	21.14
	scfh	991.30	1051.35	1111.66	286.12
CO as ppmvd (GT)		78.02	82.75	87.49	21.31
CO FROM DB	lb/hr	0.00	1.93	3.86	0.00
CO AT CATALYST INLET					
CO as ppmvd at 15% O2		70.00	71.89	73.60	20.00
CO Flow	lb/hr	73.24	79.60	85.99	21.14
	scfh	991.30	1077.46	1163.87	286.12
CO as ppmvd		78.02	84.98	92.00	21.31
CO REQUIREMENTS					
CO as ppmvd at 15% O2 (At Stack)		21.0	21.6	22.1	6.0
CO Design (DRE)	%	70.0	70.0	70.0	70.0
CO Flow (Required)	lb/hr	21.97	23.93	25.91	6.34
	scfh	297.39	323.93	350.66	85.84
CO as ppmvd (At Stack)		23.41	25.50	27.60	6.39
VOC FROM GT					
VOC as ppmvd at 15% O2 (GT)		3.00	3.00	3.00	3.00
VOC Flow (GT)	lb/hr	1.79	1.79	1.79	1.81
	scfh	42.48	42.48	42.48	42.92
VOC as ppmvd (GT)		3.34	3.34	3.34	3.20
VOC FROM DB	lb/hr	0.00	0.48	0.96	0.00
VOC AT CATALYST INLET					
VOC as ppmvd at 15% O2		3.00	3.60	4.13	3.00
VOC Flow	lb/hr	1.79	2.28	2.76	1.81
	scfh	42.48	53.91	65.33	42.92
VOC as ppmvd		3.34	4.25	5.16	3.20
VOC AT CATALYST OUTLET					
VOC as ppmvd at 15% O2		1.8	2.2	2.5	1.8
VOC Destruction (Expected)	%	40.0	40.0	40.0	40.0
VOC Flow	lb/hr	1.08	1.37	1.65	1.09
	scfh	25.49	32.34	39.20	25.75
VOC as ppmvd		2.01	2.55	3.10	1.92
Expected Pressure Drop	"H_2O	0.8	0.9	0.9	0.9

TABLE 1

EMISSION ANALYSIS
Lake Cogeneration Facility - ID No. 0694801

Air Pollutant	Total 2004 Emissions (Tons/Year)	Total 2005 Emissions (Tons/Year)	Total 2006 Emissions (Tons/Year)	Total 2007 Emissions (Tons/Year)	Total 2008 Emissions (Tons/Year)	Highest 2-yr Average	CY
CO	119.8	121.9	122.4	119.0	130.2	124.6	2007-2008
VOC	7.3	7.4	7.4	7.3	7.8	7.6	2007-2008

Table 2- Emission Summary
Lake Cogen.

Date	CO (ppmvd)		CO (lb/hr)	
	Unit 1	Unit 2	Unit 1	Unit 2
11/3/09		25.1		24
3/24-25/09		27.3/34.7		25.8/32.7
12/9-10/08	26.6/32.7		25.1/30.5	
7/15/08		27		24.2
2/15/08		27.3/34.8		26.2/32.1
12/18-19/07	27.6/30.8	27.3	26.5/29.3	26.2
6/19-20/07	26.7/28.3	28/32.7	24.1/25.5	25.0/28.8
11/1/06	21.04		18.83	
7/12/06		25.1/29.2		22.2/26.0
7/11/06	23.7/33.2		21.3/29.9	
7/20/05		22.8		20.7
4/25-26/05	16.3/20.9		14.9/18.8	
3/22-24/05		19.2/29.5		17.5/26.7
12/14/04		26.0		24.9
7/30/04		20.8		18.8
6/15/04	26.5/27.5	27.3/34.4	24.9/25.4	24.7/31.3

CT only/ CT with Duct Burner