



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 4, 2007

Electronically sent – Received Receipt requested.

Mr. James Miller, Plant Manager
Lake Cogeneration L.P.
39001 Golden Gem Drive
Umatilla, Florida 32784

Re: DEP File No. 0694801-008-AC
Lake Cogeneration L.P.

Dear Mr. Miller:

Enclosed is one copy of the Draft Air Construction Permit to modify the existing combustion turbines (Units 1 and 2) at the Lake Cogeneration Facility in Umatilla, Lake County. The Department's Intent to Issue Air Construction Permit, the Technical Evaluation and Preliminary Determination, and the Public Notice of Intent to Issue Air Construction Permit are also included.

The Public Notice must be published one time only as soon as possible in a newspaper of general circulation in the area affected, pursuant to the requirements of Chapter 50, Florida Statutes. Proof of publication, such as a newspaper affidavit, must be provided to the Department's Bureau of Air Regulation office within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in denial of the permit.

Please submit any written comments you wish to have considered concerning the Department's proposed action to A.A. Linero, Program Administrator, at the letterhead address. If you have any questions regarding this matter, please contact Tom Cascio at (850)921-9526 or Mr. Linero at (850)921-9523.

Sincerely,

For Trina Vielhauer, Chief
Bureau of Air Regulation

TLV/tbc

Enclosures

In the Matter of an
Application for Permit by:

Lake Cogeneration L.P.
39001 Golden Gem Drive
Umatilla, Florida 32784

Authorized Representative:
Mr. James Miller, Plant Manager

DEP File No. 0694801-008-AC
Lake Cogeneration Facility
Modification of Units 1 and 2
Spray Intercooling Uprate
Lake County, Florida

INTENT TO ISSUE AIR CONSTRUCTION PERMIT

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit, copy of Draft Air Construction Permit attached, for the proposed project as detailed in the application specified above and the enclosed Technical Evaluation and Preliminary Determination for the reasons stated below.

Lake Cogeneration L.P. applied on December 12, 2006 to the Department for a permit to modify and enhance the performance of the two existing combustion turbines located at its facility in Umatilla, Lake County.

The Department has permitting jurisdiction under the provisions of Chapter 403, Florida Statutes (F.S.), Florida Administrative Code (F.A.C.) Chapters 62-4, 62-210, and 62-212. The above actions are not exempt from permitting procedures. Department has determined that an air construction permit is required.

The Department intends to issue this air construction permit based on the belief that reasonable assurances have been provided to indicate that operation of these emission units will not adversely impact air quality, and the emission units will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C.

Pursuant to Section 403.815, F.S., and Rule 62-110.106(7)(a)1., F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Construction Permit. The notice shall be published one time only in the legal advertisement section of a newspaper of general circulation in the area affected. Rule 62-110.106(7)(b), F.A.C., requires that the applicant cause the notice to be published as soon as possible after notification by the Department of its intended action. For the purpose of these rules, publication in a "newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Department at the address or telephone number listed below. The applicant shall provide proof of publication to the Department's Bureau of Air Regulation, at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400 (Telephone: 850/488-0114; Fax 850/921-9533). You must provide proof of publication within seven days of publication, pursuant to Rule 62-110.106(5) & (9), F.A.C. No permitting action for which published notice is required shall be granted until proof of publication of notice is made by furnishing a uniform affidavit in substantially the form prescribed in section 50.051, F.S. to the office of the Department issuing the permit. Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rules 62-110.106(9) & (11), F.A.C.

The Department will issue the final permit with the attached conditions unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments concerning the proposed permit issuance action for a period of 14 days from the date of publication of the enclosed Public Notice. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If comments received result in a change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida, 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within fourteen days of receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3), F.S., must be filed within 14 days of publication of the public notice or within fourteen days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C..

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above. Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.



For Trina L. Vielhauer, Chief
Bureau of Air Regulation

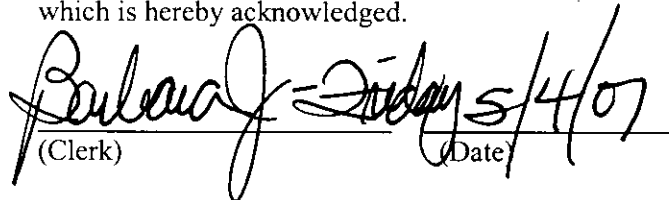
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Intent to Issue Air Construction Permit (including the Public Notice, Technical Evaluation, and the Draft permit) and all copies were sent electronically (with Received Receipt) before the close of business on 5/4/07 to the persons listed:

James Miller, Plant Manager: jmiller@caithnessenergy.com
Scott Osbourn, P.E., Golder Associates, Inc.: sosbourn@golder.com
James Bradner, P.E., Central District Office: james.bradner@dep.state.fl.us
Thomas A. Grace, Lake Cogeneration L.P.: tgrace@caithnessenergy.com
Katy Forney, EPA Region 4: forney.kathleen@epa.gov
James Little, EPA Region 4: little.james@epa.gov

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to §120.52, Florida Statutes,
with the designated Department Clerk, receipt of
which is hereby acknowledged.


(Clerk) Friday 5/4/07 (Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR CONSTRUCTION PERMIT

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP File No. 0694801-008-AC

Lake Cogeneration Facility
Modification of Units 1 and 2
Lake County

The Department of Environmental Protection (Department) gives notice of its intent to issue an air construction permit to Lake Cogeneration L.P. to modify the two combustion turbines located at its facility in Lake County. A review under the rules for the Prevention of Significant Deterioration of Air Quality (PSD) and a determination of best available control technology (BACT) were not required. The applicant's name and address are Lake Cogeneration L.P., 39001 Golden Gem Drive, Umatilla, Florida 32784.

This facility includes two 42.0 megawatt (MW) natural gas-fueled combustion turbine-electric generators (CTGs) that exhaust through two supplementary fired heat recovery steam generators (HRSGs) that provide steam to nearby industrial users or to an on-site 26.5 MW steam turbine-electric generator (STG). The facility also includes a nominal 170,000 gallon storage tank for backup fuel oil.

The permit authorizes the addition of a "Spray Intercooling" (SPRINT) system whereby atomized water is injected through spray nozzles located between the high-pressure and low-pressure compressor of each CTG. The result is that each compressor is able to pump more air, thus achieving greater power and improved efficiency.

Nitrogen oxides (NO_x) emissions are controlled by water injection. The additional SPRINT feature will have minimal effects on emissions. For example carbon monoxide (CO) and NO_x emission increases directly caused by the SPRINT project would each be on the order of 10 tons per year (TPY). A comparison of baseline actual emissions and projected actual emissions, after adjustment for expected demand growth, indicates that any emissions increases will be less than the respective significant emission rates for each pollutant (for example less than 100 TPY of CO and 40 TPY of NO_x). The project will not cause or contribute to a violation of the ambient air quality standards and increment.

The Department will issue the Final Air Construction Permit unless a response received in accordance with the following procedures results in a different decision or significant change of terms or conditions.

The Department will accept written comments and requests for a public meeting concerning the proposed permit issuance action for a period of 14 days from the date of publication of this Public Notice of Intent to Issue Air Construction Permit. Written comments should be provided to the Department's Bureau of Air Regulation at 2600 Blair Stone Road, Mail Station #5505, Tallahassee, Florida 32399-2400. Any written comments filed shall be made available for public inspection. If written comments received result in a significant change in the proposed agency action, the Department shall revise the proposed permit and require, if applicable, another Public Notice.

The Department will issue the permit with the attached conditions unless a timely petition for an administrative hearing is filed pursuant to sections 120.569 and 120.57 of the Florida Statutes (F.S.), before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below. Mediation is not available in this proceeding.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by the permit applicant or any of the parties listed below must be filed within 14 days of

(Public Notice to be Published in the Newspaper)

receipt of this notice of intent. Petitions filed by any persons other than those entitled to written notice under section 120.60(3), F.S., must be filed within 14 days of publication of the public notice or within 14 days of receipt of this notice of intent, whichever occurs first. Under section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within 14 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention in a proceeding initiated by another party will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205 of the Florida Administrative Code (F.A.C.).

A petition that disputes the material facts on which the Department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner, the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of how and when petitioner received notice of the agency decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts upon which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

A complete project file is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at:

Department of Environmental Protection
Bureau of Air Regulation
Suite 4, 111 S. Magnolia Drive
Tallahassee, Florida 32301
Telephone: 850/488-0114
Fax: 850/921-9533

Department of Environmental Protection
Central District Office
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767
Telephone: 407/894-7555
Fax: 407/897-2966

The complete project file includes the permit application, draft air construction permit, technical evaluation, and the information submitted by the responsible official, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Department's reviewing engineer for this project, Tom Cascio at MS 5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, or Tom.Cascio@dep.state.fl.us, or call 850/921-9526 for additional information. Key documents may also be viewed at: www.dep.state.fl.us/Air/permitting/construction.htm and clicking on Lake Cogeneration L.P. Plant in the power plant category.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

PERMITTEE

Lake Cogeneration L.P.
39001 Golden Gem Drive
Umatilla, Florida 32784

Authorized Representative:
Mr. James Miller, Plant Manager

Air Permit No. 0694801-008-AC
Facility ID No. 0694801
SIC No. 4931
SPRINT Project

Permit Expires: December 31, 2008

PROJECT AND LOCATION

This permit authorizes installation of spray intercooling (SPRINT) systems on the compressors of two gas turbines designated by the applicant as Units 1 and Unit 2 and by the Department of Environmental Protection (Department) Air Resource Management System as emissions units EU-003 and EU-004 located at , at the Lake Cogeneration L.P. Plant (the facility). The facility is located in Lake County at 39001 Golden Gem Drive, Umatilla, Florida 32784.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Parts 60 and 63 of the Code of Federal Regulations (CFR). The permittee is authorized to install the proposed equipment in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

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- Section 1. General Information
- Section 2. Administrative Requirements
- Section 3. Emissions Units Specific Conditions
- Section 4. Appendices

Joseph Kahn, Director
Division of Air Resource Management

(Date)

SECTION 1. GENERAL INFORMATION

FACILITY AND PROJECT DESCRIPTION

Lake Cogeneration L.P. consists primarily of two 42 megawatt (MW) combined-cycle units (Units 1 and 2). The two units are designated as Emissions Units EU-003 and 004 in the Department's Air Resource Management System (ARMS).

Each unit consists of a General Electric LM6000PA combustion turbine-electrical generator (CTG) equipped with an air chiller system and a supplementary-fired heat recovery steam generator (HRSG). The steam from the two CTG/HRSGs is available for use by local industries, to make distilled water or in a single nominal 26.5 steam turbine-electrical generator (STG) to produce additional electricity.

The two combined cycle units operate primarily on natural gas. There is a 170,000 gallon storage tank designated as ARMS EU-002.

The project is to add spray intercooling (SPRINT) systems to each CTG to increase power output. Equipment will be installed to inject atomized water into the compressor between the high-pressure and low-pressure compressors. The maximum heat input rate when firing natural gas is expected to increase from 423 to 435 million British thermal units (MMBtu) per hour per CTG.

ID	Emission Unit Description
003	Combined Cycle Combustion Turbine with Duct Burner
004	Combined Cycle Combustion Turbine with Duct Burner

REGULATORY CLASSIFICATION

NESHAP: The facility IS NOT a potential major source of hazardous air pollutants. The facility DOES NOT OPERATE units subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR 63.

Title IV: The facility DOES NOT OPERATE existing units subject to the Acid Rain provisions of the Clean Air Act (CAA).

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 stationary source in accordance with Rule 62-212.400, F.A.C.

NSPS: The facility OPERATES units subject to New Source Performance Standards (NSPS) in 40 CFR 60 including:

- 40 CFR 60, Subpart A - General Provisions.
- 40 CFR 60, Subpart GG - Standards of Performance for Stationary Gas Turbines.

CAIR: The facility IS subject to the Clean Air Interstate Rule (CAIR).

CAMR: Unit IS NOT subject to the Clean Air Mercury Rule (CMAR).

Siting: The facility is a steam electrical generating plant and IS NOT subject to the power plant siting provisions of Chapter 62-17, F.A.C.

RELEVANT DOCUMENTS

The following relevant documents are not a part of this permit, but helped form the basis for this permitting action: the permit application and additional information received to make it complete; and the Department's Technical Evaluation and Preliminary Determination.

SECTION 2. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Department. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Central District Office. The mailing address and phone number of the Central District Office is: 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803; Telephone: 407/894-7555; Fax: 407/897-5963.
3. Appendices: The following Appendices are attached as part of this permit: Appendix GC (General Conditions); and Appendix C (Common State Regulatory Requirements).
4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-296, and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.
5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]
6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]
7. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Bureau of Air Regulation with copies to each Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

This section of the permit addresses the following emissions units.

AIR RESOURCE MANAGEMENT SYSTEM (ARMS) Emissions Units 003 and 004

Description: Each emissions unit consists of a General Electric Model LM6000 gas turbine, heat recovery steam generator (HRSG) with duct firing, chiller system, and SPRINT spray inter-cooling. Steam generated in the HRSGs is directed to a common steam turbine-electrical generator, which is rated at 26.5 megawatts (MW). Energy is sold to Progress Energy pursuant to a 20-year agreement that commenced on July 1, 1993. Steam has been furnished to an orange processing facility. In 2002 the facility installed three water distillation units. The distilled water is sold on the open market. Operations and maintenance services are provided by the Caithness Operating Co., L.L.C.

Fuel: Each unit fires pipeline natural gas as the primary fuel and distillate oil as a restricted alternate fuel.

Capacity: At a turbine inlet temperature of 51° F, the maximum heat input rate from gas firing using lower heating value (LHV) without SPRINT is 423 million British thermal units (MMBtu) per hour, which produces approximately 39.5 MW. At a turbine inlet temperature of 51° F, the maximum heat input rate from gas firing (LHV) with SPRINT is 435 MMBtu per hour, which produces approximately 50.2 MW.

Nitrogen Oxides (NO_x) Controls: A water injection system is used to reduce NO_x emissions. The water-to-fuel ratio is monitored continuously and adjusted by the automatic control system based on load conditions.

Stack Parameters: The stack is 11.0 feet in diameter and 100 feet tall. After the HRSGs and steam turbine-electrical generator, the exhaust exits at 232° F with a volumetric flow rate of 325,221 actual cubic feet per minute (acfm).

{Permitting Note: The units remain subject to the applicable requirements of previous Air Construction Permit No. PSD-FL-176 (Project No. AC35-196459) and current Title V Air Operation Permit No. 0694801-005-AV.}

PREVIOUS APPLICABLE REQUIREMENTS

1. Other Permits: The conditions of this permit supplement all previously issued air construction and operation permits for this emissions unit. Unless otherwise specified, these conditions are in addition to all other applicable permit conditions and regulatory requirements. The permittee shall continue to comply with the conditions of these permits, which include restrictions and standards regarding capacities, production, operation, fuels, emissions, monitoring, record keeping, reporting, etc. [Rule 62-4.070, F.A.C.]

EQUIPMENT AND PERFORMANCE RESTRICTIONS

2. SPRINT Upgrade: This permit authorizes the construction activities necessary to add the General Electric Company's spray inter-cooling (SPRINT) technology to Unit 1 and Unit 2. In general, the equipment consists of a system that will automatically meter approximately 9 to 12 gallons per minute (gpm) of de-mineralized water to a series of 24 spray nozzles. [Applicant request.]
3. Permitted Capacity: At a turbine inlet temperature of 51° F, the maximum heat input rate from firing natural gas (LHV) when utilizing the SPRINT system is 435 MMBtu per hour per combustion turbine. [Rule 62-210.200(PTE), F.A.C.]

{Permitting Note: This permit does not alter any previous requirements for other methods of operation or modify any specifications related to authorized fuels, fuel consumption, or allowable hours of operation.}

SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

EMISSIONS STANDARDS

4. Carbon Monoxide (CO)

- a. Combustion Turbines (CTs): When firing natural gas and utilizing SPRINT, CO emissions from each unit shall not exceed 28 parts per million by volume dry (ppmvd). In addition, the maximum CO mass emission rate from both units combined shall not exceed 56.0 pounds per hour based on a turbine inlet temperature of 51° F.
{Permitting Note: The concentration-based standard (ppmvd) remains consistent with the BACT determination made in Permit No. PSD-FL-176.}
- b. Combustion Turbines and Duct Burners (CTs+DBs): When firing natural gas, operating the duct burner system, and utilizing SPRINT, the maximum CO mass emission rate from both units combined shall not exceed 92.0 pounds per hour based on a turbine inlet temperature of 51° F.

[AC35-196459; 0694801-005-AV; and Applicant request.]

5. Nitrogen Oxides (NO_x)

- a. Combustion Turbines (CTs): When firing natural gas and utilizing SPRINT, NO_x emissions from each unit shall not exceed 25 ppmvd corrected to 15% oxygen. In addition, the maximum NO_x mass emission rate from both units combined shall not exceed 85.5 pounds per hour based on a turbine inlet temperature of 51° F.
{Permitting Note: The concentration-based standard (ppmvd corrected to 15% oxygen) remains consistent with the initial BACT determination made in Permit No. PSD-FL-176.}
- b. Combustion Turbines and Duct Burners (CTs+DBs): When firing natural gas, operating the duct burner system, and utilizing SPRINT, the maximum NO_x mass emission rate from both units combined shall not exceed 103.5 pounds per hour based on a turbine inlet temperature of 51° F.

[AC35-196459; 0694801-005-AV; and Applicant request.]

6. Other Emissions Standards: Unless otherwise specified above, the emissions standards specified in current Title V Air Operation Permit No. 0694801-005-AV also apply when utilizing the SPRINT spray inter-cooling system with each corresponding operational configuration.

[Rule 62-4.070(3), F.A.C.]

EMISSIONS PERFORMANCE TESTING

7. Initial Compliance Tests: Each unit shall be tested to demonstrate initial compliance with the CO and NO_x emissions standards specified in this permit. CO and NO_x emissions tests shall be conducted concurrently. The initial tests shall be conducted within 60 days after completing construction of the SPRINT project and achieving maximum production capacity, but not later than 180 days after initial operation of the unit with SPRINT. [Rule 62-297.310(7)(a)1., F.A.C.]
8. Annual Compliance Tests: During each federal fiscal year (October 1st to September 30th), each unit shall be tested to demonstrate compliance with the CO and NO_x emissions standards specified in this permit. CO and NO_x emissions tests shall be conducted concurrently.
[Rule and 62-297.310(7)(a)4, F.A.C., and to avoid Rule 62-212.400, F.A.C.]
9. Test Notifications: At least 15 days prior to the date on which each required test is to begin, the permittee shall notify the Compliance Authority of the date, time, and place of each test. The notification shall also include the name and phone number of the contact person who will be responsible for coordinating and having the tests conducted. [Rule 62-297.310(7)(a)9, F.A.C.]

SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

10. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content.
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources.
10	Determination of Carbon Monoxide Emissions from Stationary Sources. <i>{Permitting Note: The method shall be based on a continuous sampling train.}</i>
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates. <i>{Permitting Note: The F-factor method may also be used to determine flow rates and gas analysis to calculate mass emission rates in lieu of Methods 1-4.}</i>

The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used without prior written approval from the Department. [Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

NOTIFICATIONS, RECORDS AND REPORTS

11. Construction Notifications: Within 15 days of beginning construction, the permittee shall notify the Compliance Authority that construction has commenced. Within 15 days of completing construction, the permittee shall notify the Compliance Authority that construction has concluded. Each notification shall include an updated proposed schedule of activities through the initial shakedown period and initial testing. [Rule 62-4.070(3), F.A.C.]
12. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in the facility's current Title V Air Operation Permit. For each test run, the report shall also indicate the operating load (MW), maximum heat input rate (MMBtu per hour), ambient temperature (° F), turbine inlet temperature (° F), and water-to-fuel ratio. [Rule 62-297.310(8), F.A.C.]
13. Operational Data: The permittee shall monitor and record the hours of operation utilizing SPRINT. [Rule 62-4.070(3), F.A.C.]
14. PSD Applicability Report: Before March 1st of each year, the permittee shall submit a report to the Bureau of Air Regulation and the Compliance Authority summarizing actual annual emissions for the previous calendar year. The reports shall be submitted for five separate years that are representative of normal post-change operations after completing construction of the SPRINT project. The reports shall begin during the first full year that the SPRINT technology is in use and continue for five years. Reports are subject to the following conditions.
- Actual emissions for a given year in the future shall be determined by the tested emission rates for that year and the actual hours of operation during the calendar year.
 - The total "baseline actual emissions" for Unit 1 and Unit 2 (2-year average) are 180 tons per year of carbon monoxide and 272 tons per year of nitrogen oxides.
 - In accordance with Rule 62-210.200(247), F.A.C., the permittee may "exclude that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project including any increased utilization due to product demand growth".

SECTION 3. EMISSIONS UNITS SPECIFIC CONDITIONS

- d. The permittee shall quantify any excluded emissions and provide a rationale.
- e. The annual report shall compare actual emissions calculated for a given year with the baseline actual emissions identified above. If the comparison shows an increase in actual emissions greater than the PSD significant emission rates defined in Rule 62-210.200, F.A.C., then Unit 1 and Unit 2 shall be subject to PSD preconstruction review at that time. The review shall include a determination of the Best Available Control Technology (BACT) for each PSD-significant pollutant.

[Rules 62-204.800, 62-210.200, 62-212.300(1)(e)1., and 62-212.400, F.A.C.; and
40 CFR 52.21(b)(41)(ii)(c)]

SECTION 4. APPENDIX C
COMMON STATE REGULATORY REQUIREMENTS

{Permitting Note: Unless otherwise specified by permit, the following conditions apply to all emissions units and activities at the facility.}

EMISSIONS AND CONTROLS

1. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
2. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
3. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
5. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permittee shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
6. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds or organic solvents without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(217), F.A.C.]
8. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20 percent opacity. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b)1, F.A.C.]
9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

TESTING REQUIREMENTS

10. Required Number of Test Runs: For mass emission limitations, a compliance test shall consist of three complete and separate determinations of the total air pollutant emission rate through the test section of the stack or duct and three complete and separate determinations of any applicable process variables corresponding to the three distinct time periods during which the stack emission rate was measured; provided, however, that three complete and separate determinations shall not be required if the process variables are not subject to variation during a compliance test, or if three determinations are not necessary in order to calculate the unit's emission rate. The three required test runs shall be completed within one consecutive five-day period. In the event that a sample is lost or one of the three runs must be discontinued because of circumstances beyond the control of the owner or operator, and a valid third run cannot be obtained within the five-day period allowed for the test, the Secretary or his or her designee may accept the results of two complete runs as proof of compliance, provided that the arithmetic mean of the two complete runs is at least 20% below the allowable emission limiting standard. [Rule 62-297.310(1), F.A.C.]

SECTION 4. APPENDIX C
COMMON STATE REGULATORY REQUIREMENTS

11. Operating Rate During Testing: Testing of emissions shall be conducted with the emissions unit operating at permitted capacity. Permitted capacity is defined as 90 to 100 percent of the maximum operation rate allowed by the permit. If it is impractical to test at permitted capacity, an emissions unit may be tested at less than the maximum permitted capacity; in this case, subsequent emissions unit operation is limited to 110 percent of the test rate until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 15 consecutive days for the purpose of additional compliance testing to regain the authority to operate at the permitted capacity. [Rule 62-297.310(2), F.A.C.]
12. Calculation of Emission Rate: For each emissions performance test, the indicated emission rate or concentration shall be the arithmetic average of the emission rate or concentration determined by each of the three separate test runs unless otherwise specified in a particular test method or applicable rule. [Rule 62-297.310(3), F.A.C.]
13. Test Procedures: Tests shall be conducted in accordance with all applicable requirements of Chapter 62-297, F.A.C.
- a. *Required Sampling Time*. Unless otherwise specified in the applicable rule, the required sampling time for each test run shall be no less than one hour and no greater than four hours, and the sampling time at each sampling point shall be of equal intervals of at least two minutes. The minimum observation period for a visible emissions compliance test shall be thirty (30) minutes. The observation period shall include the period during which the highest opacity can reasonably be expected to occur.
 - b. *Minimum Sample Volume*. Unless otherwise specified in the applicable rule or test method, the minimum sample volume per run shall be 25 dry standard cubic feet.
 - c. *Calibration of Sampling Equipment*. Calibration of the sampling train equipment shall be conducted in accordance with the schedule shown in Table 297.310-1, F.A.C.
- [Rule 62-297.310(4), F.A.C.]
14. Determination of Process Variables
- a. *Required Equipment*. The owner or operator of an emissions unit for which compliance tests are required shall install, operate, and maintain equipment or instruments necessary to determine process variables, such as process weight input or heat input, when such data are needed in conjunction with emissions data to determine the compliance of the emissions unit with applicable emission limiting standards.
 - b. *Accuracy of Equipment*. Equipment or instruments used to directly or indirectly determine process variables, including devices such as belt scales, weight hoppers, flow meters, and tank scales, shall be calibrated and adjusted to indicate the true value of the parameter being measured with sufficient accuracy to allow the applicable process variable to be determined within 10% of its true value.
- [Rule 62-297.310(5), F.A.C.]
15. Sampling Facilities: The permittee shall install permanent stack sampling ports and provide sampling facilities that meet the requirements of Rule 62-297.310(6), F.A.C.
16. Test Notification: The owner or operator shall notify the Department, at least 15 days prior to the date on which each formal compliance test is to begin, of the date, time, and place of each such test, and the test contact person who will be responsible for coordinating and having such test conducted for the owner or operator. [Rule 62-297.310(7)(a)9, F.A.C.]
17. Special Compliance Tests: When the Department, after investigation, has good reason (such as complaints, increased visible emissions or questionable maintenance of control equipment) to believe that any applicable emission standard contained in a Department rule or in a permit issued pursuant to those rules is being violated, it shall require the owner or operator of the emissions unit to conduct compliance tests which identify the nature and quantity of pollutant emissions from the emissions unit and to provide a report on the results of said tests to the Department. [Rule 62-297.310(7)(b), F.A.C.]
18. Test Reports: The owner or operator of an emissions unit for which a compliance test is required shall file a report with the Department on the results of each such test. The required test report shall be filed with the Department as soon as practical but no later than 45 days after the last sampling run of each test is completed. The test report shall provide sufficient detail on the emissions unit tested and the test procedures used to allow the Department to

SECTION 4. APPENDIX C
COMMON STATE REGULATORY REQUIREMENTS

determine if the test was properly conducted and the test results properly computed. As a minimum, the test report, other than for an EPA or DEP Method 9 test, shall provide the following information:

1. The type, location, and designation of the emissions unit tested.
2. The facility at which the emissions unit is located.
3. The owner or operator of the emissions unit.
4. The normal type and amount of fuels used and materials processed, and the types and amounts of fuels used and material processed during each test run.
5. The means, raw data and computations used to determine the amount of fuels used and materials processed, if necessary to determine compliance with an applicable emission limiting standard.
6. The type of air pollution control devices installed on the emissions unit, their general condition, their normal operating parameters (pressure drops, total operating current and GPM scrubber water), and their operating parameters during each test run.
7. A sketch of the duct within 8 stack diameters upstream and 2 stack diameters downstream of the sampling ports, including the distance to any upstream and downstream bends or other flow disturbances.
8. The date, starting time and duration of each sampling run.
9. The test procedures used, including any alternative procedures authorized pursuant to Rule 62-297.620, F.A.C. Where optional procedures are authorized in this chapter, indicate which option was used.
10. The number of points sampled and configuration and location of the sampling plane.
11. For each sampling point for each run, the dry gas meter reading, velocity head, pressure drop across the stack, temperatures, average meter temperatures and sample time per point.
12. The type, manufacturer and configuration of the sampling equipment used.
13. Data related to the required calibration of the test equipment.
14. Data on the identification, processing and weights of all filters used.
15. Data on the types and amounts of any chemical solutions used.
16. Data on the amount of pollutant collected from each sampling probe, the filters, and the impingers, are reported separately for the compliance test.
17. The names of individuals who furnished the process variable data, conducted the test, analyzed the samples and prepared the report.
18. All measured and calculated data required to be determined by each applicable test procedure for each run.
19. The detailed calculations for one run that relate the collected data to the calculated emission rate.
20. The applicable emission standard and the resulting maximum allowable emission rate for the emissions unit plus the test result in the same form and unit of measure.
21. A certification that, to the knowledge of the owner or his authorized agent, all data submitted are true and correct. When a compliance test is conducted for the Department or its agent, the person who conducts the test shall provide the certification with respect to the test procedures used. The owner or his authorized agent shall certify that all data required and provided to the person conducting the test are true and correct to his knowledge.

[Rule 62-297.310(8), F.A.C.]

RECORDS AND REPORTS

19. **Records Retention:** All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least five (5) years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rules 62-4.160(14) and 62-213.440(1)(b)2, F.A.C.]
20. **Annual Operating Report:** The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(2), F.A.C.]

SECTION 4. APPENDIX GC

General Permit Conditions

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
 - a. Have access to and copy and records that must be kept under the conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - a. A description of and cause of non-compliance; and
 - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source

SECTION 4. APPENDIX GC

General Permit Conditions

arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, Florida Statutes. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Florida Administrative Code Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
 - a. Determination of Best Available Control Technology (not applicable to project);
 - b. Determination of Prevention of Significant Deterioration (not applicable to project); and
 - c. Compliance with New Source Performance Standards (previously applicable to gas turbines).
14. The permittee shall comply with the following:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - c. Records of monitoring information shall include:
 - 1) The date, exact place, and time of sampling or measurements;
 - 2) The person responsible for performing the sampling or measurements;
 - 3) The dates analyses were performed;
 - 4) The person responsible for performing the analyses;
 - 5) The analytical techniques or methods used; and
 - 6) The results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

TECHNICAL EVALUATION
PRELIMINARY DETERMINATION

LAKE COGENERATION L.P.
UMATILLA, LAKE COUNTY

Modification of Units 1 and 2
Spray Intercooling (SPRINT) Systems



DEP File No. 0694801-008-AC

Department of Environmental Protection
Division of Air Resources Management
Bureau of Air Regulation

May 4, 2007

1. GENERAL PROJECT INFORMATION

Applicant Name and Address

Lake Cogeneration L.P.
39001 Golden Gem Drive
Umatilla, Florida 32784

Authorized Representative:

Mr. James Miller, Plant Manager

Processing Schedule

12/12/06 Application received for a minor source air pollution construction permit to avoid Prevention of Significant Deterioration (PSD) review.
1/5/07 Request for Additional Information letter sent to the Applicant.
2/5/07 Response received from the Applicant.
2/5/07 Application deemed complete.
5/4/07 Distributed Intent to Issue and Draft Permit.

Facility Description and Location

Lake Cogeneration L.P. (the facility) consists primarily of two natural gas-fueled nominal 42 megawatt (MW) General Electric LM6000PA combustion turbine-electrical generators (CTGs). Each is configured with a chiller system to maintain the inlet compressor air at 51° F and 100% relative humidity. Each CTG exhausts through a supplementary-fired heat recovery steam generator (HRSG) equipped with a 90 million British thermal units (MMBtu) per hour gas-fired duct burner (DB). The steam raised from each HRSG is directed steam to a common steam turbine-electrical generator (STG) that can produce 26.5 MW of electricity.

The gas turbines primarily fire natural gas, but can also fire No. 2 distillate oil as a restricted alternate emergency backup fuel. Other sources of air pollution include a 170,000 gallon oil storage tank.¹ The facility is located at 39001 Golden Gem Drive, Umatilla, Lake County, Florida 32784. The Universal Transverse Mercator (UTM) coordinates are Zone 17, 434.00 km East, and 3198.80 km North.

SIC No. 4931 – Electric and other services combined (cogeneration)

Regulatory Categories

Title I, Section 111, Clean Air Act (CAA): This facility is subject to certain Standards of Performance for New Stationary Sources. They are adopted and incorporated by reference in Rule 62-204.800, F.A.C. These include:

- 40 CFR 60, Subpart A - General Provisions.
- 40 CFR 60, Subpart GG - Standards of Performance for Stationary Gas Turbines.

Title I, Section 112 CAA: The facility does not have the potential to emit 10 tons per year or more of any one hazardous air pollutant (HAP) or 25 tons per year or more of any combination of HAPs. It is not a Major Source of HAPs.

Title I, Part C: The facility is located in an area designated as “attainment”, “maintenance”, or “unclassifiable” for each pollutant subject to a National Ambient Air Quality Standard. The facility is considered a “fossil fuel-fired steam electric plant of more than 250 million British thermal units per hour heat input”, which is one of the 28 Prevention of Significant Deterioration (PSD) source

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

categories with the lower PSD applicability threshold of 100 tons per year. Potential emissions of at least one regulated pollutant exceed 100 tons per year. Therefore, the facility is classified as a PSD-major stationary source respect to Rule 62-212.400, F.A.C., Prevention of Significant Deterioration.

Title IV, CAA: According to the applicant, the facility is a "cogeneration facility" and does not operate any units subject to the Acid Rain provisions of the Clean Air Act.

Title V, CAA: The facility is a Title V or "Major Source" of air pollution because the potential emissions of at least one regulated pollutant exceed 100 tons per year. Regulated pollutants include pollutants such as carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM/PM₁₀), sulfur dioxide (SO₂), and volatile organic compounds (VOC).

CAIR: The facility IS subject to the Clean Air Interstate Rule (CAIR).

CAMR: Unit IS NOT subject to the Clean Air Mercury Rule (CAMR).

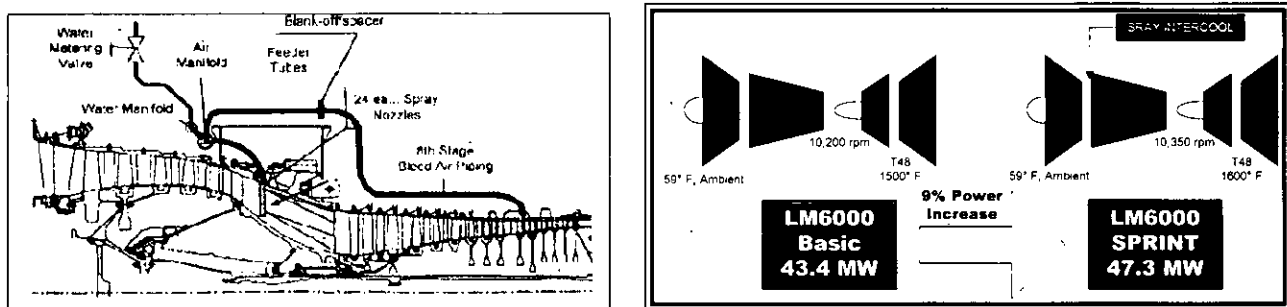
Siting: The facility is a steam electrical generating plant and IS NOT subject to the power plant siting provisions of Chapter 62-17, F.A.C.

2. PROJECT DESCRIPTION

Air Construction Permit No. AC35-196459 (PSD-FL-176) to construct the existing facility was issued on November 20, 1991. The two LM6000PA CTGs along with the HRSGs, DBs and the STG began operation in 1993. The Applicant proposes to add "Spray Intercooling" (SPRINT) technology to each CTG. Atomized water will be injected through spray nozzles located between the high-pressure and low-pressure compressor of each CTG.² The result is that each compressor will be capable of pumping more air and thereby achieve greater power and improved efficiency.

The left hand side of following figure is a half section view of the LM6000 SPRINT gas turbine, which shows the location of the spray nozzles between the low pressure and high pressure compressors.^{3, 4, 5}

The benefits of SPRINT are more pronounced at high ambient temperatures. At International Organization of Standardization (ISO) conditions (59° F), SPRINT can provide an additional 9% more power. However, at an ambient temperature of 90° F, SPRINT can provide 20% more power. The right hand side of the following figure schematically shows the benefits of SPRINT inter-cooling at ISO conditions.



Half Section View of LM6000 Compressor Section. Schematic of SPRINT Technology

The maximum heat input rate when firing natural gas is expected to increase from 423 to 435 million British thermal units (MMBtu) per hour per CT. The applicant estimates

3. EFFECTS ON EMISSIONS

Applicant's basic analysis

The Applicant provided the following discussion and analysis with regard to carbon monoxide (CO) and nitrogen oxides (NO_x) emissions. It is expected that the uprate will have no effect on any other air pollutants.

Based on emission levels seen from similar uprates in other units, the NO_x and CO emission concentrations resulting from the CT uprate modification are expected to remain within compliance of the current permit concentration parts per million (ppm) requirements. The total plant mass emission rates in pounds per hour (lb/hr) for NO_x and CO are not expected to increase.

Currently, the site's LM6000PA engines use water injection into the combustion chamber to meet permit limits. The water moderates the flame temperature, which suppresses NO_x formation. It is anticipated that this same technique will continue to be used to control NO_x emissions, while firing natural gas, at 25 ppmvd/85.5 lb/hr and CO emissions at 28 ppmvd/56.0 lb/hr with the modified units also.

Similarly, it is expected that the uprate will have little or no effect on any other air pollutant including volatile organic compounds (VOC) and particulate matter (PM/PM₁₀).

4. DETERMINATION WHETHER PROJECT IS A (NON-MAJOR) MODIFICATION

Per Rule 62-210.200(203), F.A.C., a modification is defined as follows:

"Modification" – 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 air pollutant subject to regulation under the Act, including any not previously emitted, from any emissions unit or facility.

(a) A physical change or change in the method of operation shall not include:

- 1. Routine maintenance, repair, or replacement of component parts of an emissions unit; or*
- 2. A change in ownership of an emissions unit or facility.*

(b) & (c) (Not relevant in this analysis)

The installation of the SPRINT system is a physical change that involves additional components. It is not routine maintenance, repair or replacement of component parts of an emissions unit. If increases in actual emissions accompany the physical change, then the project constitutes a modification.

Per Rule 62-210.200(11), F.A.C., actual emissions are defined as follows:

"Actual Emissions" – The actual rate of emission of a pollutant from an emissions unit as determined in accordance with the following provisions:

(a) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of the normal operation of the emissions unit. The Department shall allow the use of a different time period upon a determination that it is more representative of the normal operation of the emissions unit. Actual emissions shall be calculated using the emissions unit's actual operating hours, production rates and types of materials processed, stored, or combusted during the selected time period.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

- (b) *The Department may presume that unit-specific allowable emissions for an emissions unit are equivalent to the actual emissions of the emissions unit provided that such unit-specific allowable emissions limits are federally enforceable.*
- (c) *For any emissions unit that has not begun normal operations on a particular date, **actual emissions shall equal the potential emissions** of the emissions unit on that date.*

The unit has not yet begun normal operation with the SPRINT technology. The following table is a summary and comparison of actual emissions from the two emissions units preceding the planned SPRINT project and the potential emissions of the two units.

Pollutant	Actual Emissions 2004-2005 tons per year	Potential Emissions tons per year	Calculated Increase tons per year
NO _x	188	405	217
CO	127	350	223
PM/PM ₁₀	12	27	15
SO ₂	4	21	17
VOC	6	31	25

The Department assumed the most recent reported annual emissions are adequate for this portion of the review. The Department also assumed that the present permit limits that are the same as the requested future permit limits equal the potential emissions. Based on the foregoing analysis, the SPRINT project constitutes at least a (non-major) modification with respect to the Department's rules and requires a construction permit.

5. DETERMINATION WHETHER THE PROJECT IS A MAJOR MODIFICATION

Per Rule 62-210.200(190), F.A.C., a major modification is defined as follows:

Major Modification –

- (a) *Any physical change in or change in the method of operation of a major stationary source that would result in a **significant emissions increase** of a PSD pollutant and a significant **net emissions increase** of that pollutant from the major stationary source.*

Per Rule 62-210.200(208), F.A.C., a net emissions increase is defined as follows:

Net Emissions Increase –

- (a) *With respect to any PSD pollutant emitted by a major stationary source, the amount by which the sum of the following exceeds zero (0):*
- 1. The increase in emissions from a particular physical change or change in the method of operation as calculated pursuant to paragraph 62-212.400(2)(a), F.A.C.; and*

Per Rule 62-212.400(2)(a), F.A.C., the net emissions increase calculated as follows:

The requirements of subsections 62-212.400(4) through (12), F.A.C., apply to the construction of any new major stationary source or the major modification of any existing major stationary source. The Department shall determine whether a major modification will occur for each PSD pollutant as follows:

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

1. **Baseline Actual-to-Projected Actual Applicability Test for Modifications at Existing Emissions Units.** *A significant emissions increase of a PSD pollutant will occur if the difference, or the sum of the differences if more than one emissions unit is involved, between the projected actual emissions and the baseline actual emissions equals or exceeds the significant emissions rate for that pollutant. If a combination of new and existing emissions units is involved, then the major modification shall be determined by the hybrid test for multiple types of emissions units pursuant to subparagraph 62-212.400(2)(a)3., F.A.C.*

Per Rule 62-210.200(36), F.A.C., “Baseline Actual Emissions” of a PSD pollutant, are defined as follows:

*For any existing **electric utility steam generating unit**, baseline actual emissions means the average rate, in tons per year, at which the unit actually emitted the pollutant during any consecutive 24-month period **selected by the owner or operator within the 5-year period immediately preceding the date a complete permit application is received by the Department.** The Department **shall allow the use of a different time period** upon a determination that it is more representative of normal source operation.*

The applicant selected initially requested use of a 2-year period that occurred more than five years preceding the date that the Department received a complete application. The Department believes that the period 2001-2002 is representative. It is also the period during which the highest emissions were observed during the 5-year period immediately preceding the date that the Department received the application.

Per Rule 62-210.200(247), F.A.C., “Projected Actual Emissions” of a PSD pollutant, are defined as follows:

The maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a PSD pollutant in any one of the 5 years following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that PSD pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source. One year is one 12-month period. In determining the projected actual emissions, the Department:

- (a) Shall consider all relevant information, including **historical operational data**, the company's own representations, the company's expected business activity and the company's highest projections of business activity, the company's filings with the State or Federal regulatory authorities, and compliance plans or orders, including consent orders; and*
- (b) Shall include fugitive emissions to the extent quantifiable and emissions associated with startups and shutdowns; and*
- (c) Shall exclude that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project including **any increased utilization due to product demand growth**; or*

The applicant estimated projected future actual emissions equal to the highest emissions since the date the unit commenced operations. This occurred in 1996 and 1998 when there was high demand from the key nearby steam host.

The projection based on historical operation is an acceptable basis.

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

The applicant assumes that at some time in the future they will experience demand and emissions equal to maximum demand and emissions experienced in the past. The estimates provided indicate the company's expectations that at some time in the future there will be increased (or restored) steam or electrical demand from nearby citrus operations and investor owned utilities such as Progress Energy Florida.

Following table is a summary and comparison of baseline actual to projected actual emissions.

Pollutant	Baseline Actual Emissions (2001 and 2002) tons per year	Projected Actual Emissions tons per year	Difference tons per year
NO _x	272	346	74
CO	180	236	56

Virtually the entire difference in emissions between the baseline years of 2001-2002 and the future years (during which greater emissions would occur) represents:

- *Emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project; or*
- *Emissions due to increased utilization due to demand growth.*

After correction for these two factors, the net emissions increases will be a little greater than zero. This is logical because emissions are not actually expected to change in an appreciable manner. A rough estimate of the net emission increase is based on the fact that the maximum heat input will increase by approximately 12 MMBtu/hr. This increase equates to approximately 3 percent (%) and would cause about 10 tons per year of NO_x. To determine whether the modification is actually a "major modification" subject to PSD, it is necessary to compare the net emissions increases with the significant emissions rates for key pollutants. These are as follows per Rule 62-210.200(277):

"Significant Emissions Rate" (SERs) –

(a) *With respect to any emissions increase or any net emissions increase, or the potential of a facility to emit any of the following pollutants, significant emissions rate means a rate of pollutant emissions that would equal or exceed:*

1. *A rate listed at 40 CFR 52.21(b)(23)(i), adopted by reference at Rule 62-204.800, F.A.C.; specifically, any of the following rates:*

- *Carbon monoxide: 100 tons per year (tpy);*
- *Nitrogen oxides: 40 tpy;*
- *Sulfur dioxide: 40 tpy;*
- *Particulate matter:*
- *25 tpy of particulate matter emissions;*
- *15 tpy of PM₁₀ emissions;*
- *Ozone: 40 tpy of volatile organic compounds;*
- *Sulfuric acid mist: 7 tpy;*

TECHNICAL EVALUATION AND PRELIMINARY DETERMINATION

After the described corrections and after comparing the resulting net emissions increases with the respective SERs, it is clear that there will be no significant emissions increases of PSD pollutants. Therefore the project does not constitute a major modification. A PSD modeling review and a determination of best available control technology are not required.

6. OTHER APPLICABLE REGULATIONS

The requirements already listed in the facilities existing Title V Operation Permit No. 0694801-005-AV are comprehensive and sufficient for the future operation of the facility. The main additional requirement is for an air construction pursuant to Rules 62-4, 62-210 and 62-212.300, F.A.C. to proceed with the project. The permit will include testing and recordkeeping conditions demonstrating that the project does not actually cause significant emission increases.

The applicant already plans to install a continuous emission monitoring system (CEMS) for monitoring of NO_x pursuant to the Clean Air Interstate Rule. That will address the key pollutant. The Department will not impose further requirements because the reasonably expected near-zero net emissions increases will be much less than the respective SERs for each pollutant.

REFERENCES

- ¹ Title V Air Operation Permit No. 0694801-005-AV for Lake Cogeneration L.P.
- ² Application by Lake Cogeneration L.P. Requesting an Air Construction Permit to Add SPRINT Technology to the Two Existing Gas Turbines (Project No. 0694801-008-AC).
- ³ "LM6000 SPRINT in Service with British REC"; Article from the magazine *International Turbomachinery* dated September/October 1998.
- ⁴ "LM6000 Now with SPRINT Power Boost"; Article from a 1999 Company Brochure by S&S Energy Products: A GE Power Systems Business.
- ⁵ "Inter-cooling for LM6000 Gas Turbines" by Mark McNeely; Article from the 1998 July/August Edition of the magazine *Diesel and Gas Turbine Worldwide*.

Friday, Barbara

To: jmill@caithnessenergy.com; sosbourn@golder.com; Bradner, James;
tgrace@caithnessenergy.com; 'Forney.Kathleen@epamail.epa.gov';
'Little.James@epamail.epa.gov'

Cc: Cascio, Tom

Subject: DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.

Attachments: TECHNICAL.pdf; 0694801008Intent.pdf; AppendixC.pdf; AppendixGC.pdf; COVER.pdf;
NOTICE.pdf; Section1.pdf; Section2.pdf; Section3.pdf

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Thank you,

DEP, Bureau of Air Regulation

5/4/2007

Friday, Barbara

From: System Administrator
To: Bradner, James
Sent: Friday, May 04, 2007 1:27 PM
Subject: Delivered:DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.

Your message

To: 'jmillier@caithnessenergy.com'; 'sosbourn@golder.com'; Bradner, James; 'tgrace@caithnessenergy.com';
'Forney.Kathleen@epamail.epa.gov'; 'Little.James@epamail.epa.gov'
Cc: Cascio, Tom
Subject: DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.
Sent: 5/4/2007 1:26 PM

was delivered to the following recipient(s):

Bradner, James on 5/4/2007 1:27 PM

Friday, Barbara

From: System Administrator
To: Cascio, Tom
Sent: Friday, May 04, 2007 1:27 PM
Subject: Delivered:DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.

Your message

To: 'jmillier@caithnessenergy.com'; 'sosbourn@golder.com'; Bradner, James; 'tgrace@caithnessenergy.com'; 'Forney.Kathleen@epamail.epa.gov'; 'Little.James@epamail.epa.gov'
Cc: Cascio, Tom
Subject: DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.
Sent: 5/4/2007 1:26 PM

was delivered to the following recipient(s):

Cascio, Tom on 5/4/2007 1:27 PM

Friday, Barbara

From: Mail Delivery System [MAILER-DAEMON@mseive01.rtp.epa.gov]
Sent: Friday, May 04, 2007 1:27 PM
To: Friday, Barbara
Subject: Successful Mail Delivery Report

Attachments: Delivery report; Message Headers



Delivery report.txt
(724 B)



Message
Headers.txt (2 KB)

This is the mail system at host mseive01.rtp.epa.gov.

Your message was successfully delivered to the destination(s) listed below. If the message was delivered to mailbox you will receive no further notifications. Otherwise you may still receive notifications of mail delivery errors from other systems.

The mail system

<Forney.Kathleen@epamail.epa.gov>: delivery via 127.0.0.1[127.0.0.1]:10025: 250
OK, sent 463B6CD5_16976_93853_1

<Little.James@epamail.epa.gov>: delivery via 127.0.0.1[127.0.0.1]:10025: 250
OK, sent 463B6CD5_16976_93853_1

Friday, Barbara

From: Exchange Administrator
Sent: Friday, May 04, 2007 1:28 PM
To: Friday, Barbara
Subject: Delivery Status Notification (Relay)

Attachments: ATT104280.txt; DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.



ATT104280.txt
(379 B)



DRAFT Air Permit
No.: 0694801...

This is an automatically generated Delivery Status Notification.

Your message has been successfully relayed to the following recipients, but the requested delivery status notifications may not be generated by the destination.

jmilller@caithnessenergy.com
tgrace@caithnessenergy.com

Friday, Barbara

From: Thomas Grace [tgrace@caithnessenergy.com]
To: Friday, Barbara
Sent: Friday, May 04, 2007 1:35 PM
Subject: Read: DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.

Your message

To: tgrace@caithnessenergy.com
Subject:

was read on 5/4/2007 1:35 PM.

Friday, Barbara

From: Thomas Grace [tgrace@caithnessenergy.com]
Sent: Friday, May 04, 2007 1:49 PM
To: Friday, Barbara
Subject: RE: DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.

Draft Permit material received. Many Thanks to you, Al and Tom. Will be back with Tom once we've had a chance to review.

Tom Grace

-----Original Message-----

From: Friday, Barbara [mailto:Barbara.Friday@dep.state.fl.us]
Sent: Friday, May 04, 2007 10:26 AM
To: James Miller; sosbourn@golder.com; Bradner, James; Thomas Grace; Forney.Kathleen@epamail.epa.gov; Little.James@epamail.epa.gov
Cc: Cascio, Tom
Subject: DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.

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5/4/2007

Friday, Barbara

From: Forney.Kathleen@epamail.epa.gov
Sent: Friday, May 04, 2007 1:49 PM
To: Friday, Barbara
Subject: Re: DRAFT Air Permit No.: 0694801-008-AC - Lake Cogeneration, L.P.

Attachments: TECHNICAL.pdf; 0694801008Intent.pdf; AppendixC.pdf; AppendixGC.pdf; COVER.pdf; NOTICE.pdf; Section1.pdf; Section2.pdf; Section3.pdf



TECHNICAL.pdf
(371 KB)



0694801008Intent.pdf (3 MB)



AppendixC.pdf (79 KB)



AppendixGC.pdf
(47 KB)



COVER.pdf (57 KB)



NOTICE.pdf (51 KB)



Section1.pdf (63 KB)



Section2.pdf (26 KB)



Section3.pdf (177 KB)

Thanks,

I got it this time.
KT

Katy R. Forney
Air Permits Section
EPA - Region 4
61 Forsyth St., SW
Atlanta, GA 30024

Phone: 404-562-9130
Fax: 404-562-9019

"Friday,
Barbara"
<Barbara.Friday@
dep.state.fl.us>

05/04/2007 01:26
PM

To
<jmiller@caithnessenergy.com>,
<sosbourn@golder.com>, "Bradner,
James"
<James.Bradner@dep.state.fl.us>,
<tgrace@caithnessenergy.com>,
Kathleen Forney/R4/USEPA/US@EPA,
James Little/R4/USEPA/US@EPA

cc

"Cascio, Tom"
<Tom.Cascio@dep.state.fl.us>
Subject

DRAFT Air Permit No.:
0694801-008-AC - Lake
Cogeneration, L.P.

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Thank you,

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file: AppendixGC.pdf) (See attached file: COVER.pdf) (See attached file:
NOTICE.pdf) (See attached file: Section1.pdf) (See attached file:
Section2.pdf) (See attached file: Section3.pdf)