

DRAFT PERMIT

PERMITTEE

Lake Cogeneration Ltd.
39001 Golden Gem Drive
Umatilla, Florida 32784

Authorized Representative:
James Miller, Plant Manager

Air Permit No. 0694801-012-AC
Permit Expires: June 1, 2011
Lake Cogeneration Facility
Minor Source Air Construction Permit
Installation of Oxidation Catalyst
Control Systems

PROJECT AND LOCATION

This permit authorizes the installation of oxidation catalyst control systems to the existing two General Electric (GE) LM-6000 combustion turbine units. The proposed work will be conducted at the Lake Cogeneration Facility, which is a combined cycle combustion turbine cogeneration plant (Standard Industrial Classification No. 4931). The facility is located in Lake County at 39001 Golden Gem Drive in Umatilla, Florida. The UTM coordinates are Zone 17, 434.00 km East, and 3198.80 km North.

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.). The permittee is authorized to conduct the proposed work 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. The Lake Cogeneration Facility is subject to the preconstruction review requirements for major stationary sources in Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality. However, this project is only subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

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Executed in Tallahassee, Florida

(DRAFT)

Joseph Kahn, Director
Division of Air Resource Management

(Date)

FACILITY AND PROJECT DESCRIPTION**Existing Facility**

Lake Investment, Ltd. owns the Lake Cogeneration Facility, which is a combined cycle combustion turbine (CT) cogeneration plant. The facility consists of two GE LM-6000 CT units. Each unit is equipped with an inlet chiller and supplementary fired duct burner and exhausts through a Heat Recovery Steam Generator (HRSG) stack. Natural gas is the primary fuel fired in the CT, with distillate oil used as a restricted alternate fuel.

In 2007, a spray intercooling (SPRINT) system was installed on each of the CT. A continuous emission monitoring system (CEMS) for monitoring and reporting NO_x emissions was also installed on each unit. The facility consists of the emission units given below.

Facility ID No. 0694801	
ID No.	Emission Unit Description
002	Fuel Oil Tank
003	Combined Cycle Combustion Turbine with Duct Burner
004	Combined Cycle Combustion Turbine with Duct Burner

Proposed Project

The proposed project authorizes the installation of an oxidation catalyst system in the HRSG associated with each of the two CT units. The oxidation catalyst system is used to control or reduce carbon monoxide (CO) emissions. The catalyst (stainless steel foil coated with calcined alumina with platinum metal) enhances the chemical reaction between oxygen and CO and forms carbon dioxide. This project generally provides for emission control of CO in the range of 50 to 70%. The project will also result in an emission reduction of volatile organic compounds (VOC). This project will modify the following emissions units.

Facility ID No. 0694801	
ID No.	Emission Unit Description
003	Combined Cycle Combustion Turbine with Duct Burner
004	Combined Cycle Combustion Turbine with Duct Burner

FACILITY REGULATORY CLASSIFICATION

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility has no units subject to the acid rain provisions of the Clean Air Act (CAA).
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400(PSD), F.A.C.

SECTION 2. ADMINISTRATIVE REQUIREMENTS (DRAFT)

1. Permitting Authority: The permitting authority for this project is the Bureau of Air Regulation, Division of Air Resource Management, Florida Department of Environmental Protection (Department). The Bureau of Air Regulation's mailing address is 2600 Blair Stone Road (MS #5505), Tallahassee, Florida 32399-2400. All documents related to applications for permits to operate an emissions unit shall be submitted to the Air Resource Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803-3767.
2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Air Resources Section of the Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803-3767.
3. Appendices: The following Appendices are attached as part of this permit:
 - a. Appendix A. Citation Formats and Glossary of Common Terms;
 - b. Appendix B. General Conditions;
 - c. Appendix C. Common Conditions; and
 - d. Appendix D. Common Testing 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: The permittee shall notify the Compliance Authority upon commencement of construction. No new emissions unit shall be constructed and no existing emissions unit shall be 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. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V air operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V air operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after 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 Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803-3767. [Rules 62-4.030, 62-4.050, 62-4.220 and Chapter 62-213, F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

A. Combustion Turbine Units (EU-003 and -004)

Emissions Units 003 and 004

Description: Each unit consists of a GE Model LM-6000 CT, HRSG with duct firing, chiller system, and SPRINT spray inter-cooling. Steam generated in the HRSG is directed to a common steam turbine-electrical generator (STG), which is rated at 26.5 megawatts (MW).

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 based on the lower heating value (LHV) is: 423 million British thermal units (MMBtu) per hour without SPRINT, which produces approximately 39.5 MW; or 450 MMBtu per hour with SPRINT, which produces approximately 52 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.

Carbon Monoxide (CO) Controls: This project adds an oxidation catalyst system to each CT unit to reduce CO and VOC emissions.

Stack Parameters: The stack is a maximum of 11 feet in diameter and at least 100 feet tall. At base load conditions and a compressor inlet temperature of 51°F, exhaust gas exits the stack at approximately 250 °F with a volumetric flow rate of approximately 320,253 actual cubic feet per minute (acfm).

CEMS: Each unit is equipped with a CEMS to monitor NO_x emissions.

EQUIPMENT

1. Oxidation Catalyst System: The permittee shall install an EmeraChem (or equivalent) oxidation catalyst system in the HRSG of each CT unit. The catalyst, which is stainless steel foil coated with calcined alumina with platinum metal, enhances the chemical reaction between oxygen and CO. The use of this oxidation catalyst system generally provides for an emission reduction of CO in the range of 50% to 70%, depending on the exhaust gas temperature. [Application No. 0694801-012-AC]

EMISSION LIMITS AND PERFORMANCE STANDARDS

{Permitting Note: This project adds an oxidation catalyst system to each CT unit. There are no changes to any permitted capacities, operational restrictions or emission standards in any previously issued air construction or Title V permits.}

TESTING REQUIREMENTS

2. Initial Compliance Tests: Each unit shall be tested to demonstrate initial compliance with the CO emissions standards specified in the Title V air operation permit. The initial tests shall be conducted within 60 days after completing construction of the oxidation catalyst project and achieving maximum production capacity, but not later than 180 days after initial operation of the unit with the oxidation catalyst. Satisfactory test results may be used to demonstrate annual compliance required by the Title V air operation permit for the year that the initial compliance test took place. [Rules 62-4.070(3) and 62-297.310(7)(a)1, F.A.C.]
3. 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. Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(7)(a)9, F.A.C.]

SECTION 3. EMISSIONS UNIT SPECIFIC CONDITIONS (DRAFT)

A. Combustion Turbine Units (EU-003 and -004)

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

Method	Description of Method and Comments
10	Determination of Carbon Monoxide Emissions from Stationary Sources (The method shall be based on a continuous sampling train.)
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)

The above methods are described in Appendix A of 40 CFR 60 and are adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [Rules 62-204.800 and Appendix A of 40 CFR 60]

RECORDS AND REPORTS

5. Test Reports: The permittee shall prepare and submit reports for all required tests in accordance with the requirements specified in Appendix D (Common Testing Requirements) of this permit. For each test run, the report shall also indicate load (MW), the heat input rate (MMBtu per hour), fuel firing rate, NO_x emissions monitored by the CEMS, ambient temperature (°F), turbine inlet temperature (°F), and water-to-fuel ratio. [Rule 62-297.310(8), F.A.C.]
6. Testing Capacity: The permittee shall conduct compliance testing of emissions with each CT operating at capacity. Capacity is defined as 90-100 percent of the manufacturer's rated heat input achievable for the average compressor inlet conditions during the test. If it is impracticable to test at capacity, then each CT may be tested at less than capacity. In such cases, the entire curve or table shall be adjusted downward by the increment that reflects the reduced rate of operation at which compliance was demonstrated. This increment is equal to the difference between the manufacturer's heat input or fuel usage value and 110 percent of the value reached during the test. In this case, the data and calculations necessary to demonstrate the heat input or fuel usage rate correction shall be submitted to the department with the compliance test report. Procedures for these tests shall meet all applicable requirements (i.e., testing time frequency, minimum compliance duration, etc.) as given in Appendix D of this permit. [Rule 62-4.070(3), F.A.C.]

NOTIFICATIONS

7. Construction Notifications: Within 15 days of completing construction, the permittee shall notify the Compliance Authority that construction has been completed. The 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.]