TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

PROJECT

Project No. 0310047-018-AC
Air Permit No. PSD-FL-386A

JEA – Kennedy Generating Station
ARMS Facility ID No. 0310047
Combustion Turbine No. 8

COUNTY

Duval County, Florida

APPLICANT

JEA
Kennedy Generating Station
21 West Church Street
Jacksonville, Fl 32202

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation – New Source Review Section
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

September 2, 2008

I. GENERAL PROJECT INFORMATION

A. Facility Description and Location

The facility is an electric services facility, which is categorized under Standard Industrial Classification Code SIC No. 4911. The UTM coordinates are Zone 17, 440.67 km East, and 3359.15 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to a National Ambient Air Quality Standard (NAAQS).

B. Facility Regulatory Categories

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

Title IV: The facility operates units subject to the acid rain provisions of the Clean Air Act.

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

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

C. Project Description

Air Permit No. PSD-FL-386 authorized the construction of a simple cycle combustion turbine (CT) generator, CT No. 8 (Emission Unit No. 016), with a nominal output of 172 megawatts (MW) at the existing Kennedy Generating Station. The permit was issued on May 4, 2007. The applicant has submitted this request for some minor permit revisions to the original PSD-FL-386 permit. The details of the permit revisions and Department's responses are as follows. Please note that double underlined words are additions and strikethrough words are deletions.

Permit Revision Request #1: Currently Specific Condition 29.b. reads as follows:

"Malfunction Notification: For each malfunction resulting in excess emissions, the permittee shall notify the Compliance Authority within one working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the compliance Authority may request a written summary report of the incident."

The applicant would like to clarify that the reporting of excess emissions resulting from malfunction should only be reported if the excess emissions exceed 2 hours in a 24 hour period.

Department's Response for Request #1: Specific Condition 29.b. will be changed to read as follows:

Malfunction Notification: For each malfunction resulting in excess emissions that exceed two hours in any 24 hour period, the permittee shall notify the Compliance Authority within one working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Compliance Authority may request a written summary report of the incident.

Additionally, the heading of the Specific Condition 29 will be changed from NSPS Emission Reports to Emission Reports and Specific Condition 29.a. will have a sub-heading of NSPS Emissions Report.

Specific Condition 29 will be changed to read as follows:

~~NSPS~~ Emissions Reports

a. NSPS Emissions Report: Within thirty (30) days following each calendar semiannual period, the permittee shall submit a report including any applicable periods of excess emissions and monitoring systems performance as defined in 40 CFR 60, Subpart KKKK (Standards of Performance for Stationary Combustion Turbines) that occurred during the previous semiannual period to the Compliance Authority.

b. *Malfunction Notification*: For each malfunction resulting in excess emissions that exceed two hours in any 24 hour period, the permittee shall notify the Compliance Authority within one working day of: the

nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Compliance Authority may request a written summary report of the incident.

[Rules 62-4.070(3), 62-4.130, 62-204.800, 62-210.700(6) and 62-212.400(BACT), F.A.C.; and 40 CFR 60.7 and 60.4395]

Permit Revision Request #2: The current expiration date of the subject construction permit is December 31, 2008. The expected commercial operation date is early 2009 which will be followed by a request for a permit revision to the Title V permit for this facility to include the new combustion turbine. The applicant requests that the expiration date of the construction permit be revised to December 31, 2009.

Department's Response for Request #2: The Department will extend the expiration date of the construction permit to December 31, 2009.

Permit Revision Request #3: The applicant indicated that under Specific Condition 12, the basis of the NOx limits should be new source performance standards (NSPS) Subpart KKKK which is on a concentration basis. The mass emission rate (lb/hr) limits should be omitted because there is no regulatory basis. Also, the permit should clearly state that excess emissions during startups, shutdowns and malfunctions are allowed if it doesn't exceed two hours in any 24-hour period.

Department's Response for Request #3: The applicant in consultation with the Department on this issue has agreed in conducting initial mass emission rate test for natural gas and fuel oil operation. The Department will make the necessary changes in the permit condition to reflect that the mass emission rate testing will be done initially when the unit is started up. The Department has made it clear in Permit Revision Request #1 that excess emissions during startups, shutdowns and malfunctions are allowed if it doesn't exceed two hours in any 24-hour period. The Department acknowledges that the Environmental Protection Agency (EPA) in the preamble to Subpart KKKK responded to some commenter's wanting clarification on the applicability of NOx standards during periods of startup, shutdown and malfunction. EPA responded as follows:

"Regarding the negative stigma, we cannot determine how other parties interpret the final rule. It is clear that continuous compliance is not a requirement of the final rule *during periods of startup, shutdown and malfunction."* (italics added by the Department)

The Department notes that the foregoing applies to Subpart KKKK.

Specific Condition 12 will be changed to read as follows:

Emission Standards: Emissions from each combustion turbine shall not exceed the following emissions standards.

Pollutant	Emission Standard [e]	Averaging Time	Compliance Method	Basis
CO [a] (Gas)	9.0 ppmvd @ 15% O_2	3-hour test avg.	EPA Method 10 Test	Avoid PSD
	32.0 lb/hour			
CO [a] (Oil)	20.0 ppmvd @ 15% O_2	3-hour test avg.	EPA Method 10 Test	
	66.0 lb/hour			
NOx [b] (Gas)	15.0 ppmvd @ 15% O_2	4 hour rolling average	CEMS	Avoid PSD
	108.3 lb/hour	3-hour test avg.	CEMS and EPA Method 19	Avoid PSD
NO_X [b] (Oil)	42 ppmvd @ 15% O_2	4 hour rolling average	CEMS	Avoid PSD
	335.0 lb/hour	3-hour test avg.	CEMS and EPA Method 19	
PM/PM_{10} [c]	10% Opacity	6-minute block	EPA Method 9 Test	BACT

Pollutant	Emission Standard [e]	Averaging Time	Compliance Method	Basis
	Fuel sulfur specifications	N/A	Record Keeping	
SO_2 [d] (Gas)	2 grains S/100 SCF of gas	N/A	Record Keeping	Avoid PSD
SO_2 [d] (Oil)	0.05% sulfur by weight	N/A	Record Keeping	Avoid PSD

a. The permittee shall conduct an initial test to demonstrate compliance with the CO emissions limits for the unit as constructed. Subsequent compliance tests shall be conducted during the year prior to renewing the Title V operating permit.

b. Continuous compliance shall be demonstrated with the 4-hour rolling average NOx emissions limit (ppmvd @ 15% O_2) by data collected from the required continuous emissions monitoring system (CEMS). If the CEMS data indicates that the 4-hour rolling average is in excess of the emission limit, excess emission reports must be filed. Compliance with the NO_X emissions limit (lb/hr) shall be demonstrated only during the initial compliance test by converting the NO_X CEMS data collected during the initial CO test by using the applicable F-Factor and EPA Method 19.

c. The fuel sulfur specifications combined with the efficient combustion design and operation of the combustion turbine represents BACT for PM/PM_{10} emissions. No stack tests are required. Compliance with the CO and visible emissions standards shall serve as indicators of good combustion. *{Permitting Note: Maximum expected PM/PM_{10} emissions are approximately 19 lb/hour on natural gas and 45.0 lb/hr on oil.}*

d. The fuel sulfur specifications effectively limit the potential emissions of sulfur dioxide (SO_2) from each combustion turbine. No stack tests are required.

e. The mass emission rate standards are based on a turbine inlet condition of 59° F and the higher heating value of each fuel. Mass emission rates may be adjusted for actual test conditions in accordance with the performance curves and/or equations on file with the Department.

[Rule 62-212.400 (BACT), F.A.C.; Rule 62-4.070(3), F.A.C.]

Permit Revision Request #4: The applicant requested that in Specific Condition 23, the words "annual and" should be removed from the statement "The annual and required RATA tests required for the NOx monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60." Depending on how often the turbine operates, Part 75 RATA tests may not be required annually. Compliance is demonstrated using CEMS, so annual stack testing should not be required.

Department's Response for Request #4: The Department is in agreement with the applicant on this request. Specific Condition 23 will be changed to read as follows:

CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) to measure and record the emissions of NO_X from the combustion turbine in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards of this section. All continuous monitoring systems shall be installed and functioning within the required performance specification by the time of the initial performance tests.

a. *NO_X Monitor:* Each NO_X monitor shall be certified pursuant to the specifications of 40 CFR 75 and comply with the applicable requirements of 40 CFR 60 Subpart KKKK. Quality assurance procedures shall conform to the requirements of 40 CFR 75. The ~~annual and required~~ RATA tests required for the NO_X monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60.

b. *Diluent Monitor:* The oxygen (O_2) or carbon dioxide (CO_2) content of the flue gas shall be monitored at the location where NO_X is monitored to correct the measured emissions rates to 15% oxygen. If a CO_2 monitor

is installed, the oxygen content of the flue gas shall be calculated using F-factors that are appropriate for the fuel fired. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75.

[Rules 62-4.070(3), 62-210.800, 62-212.400(BACT) and 62-297.520, F.A.C.]

Permit Revision Request #5: The applicant wanted to add a new subparagraph c. for Specific Condition 23 which states that substituted data and bias corrected data required for purposes of 40 CFR Part 75 are not to be used for purposes of demonstrating compliance with CEMS emission limits under this permit. The applicant indicated that the following language in Specific Condition 23.c. should be added:

"For purposes of determining compliance with the CEMS emissions standards of the permit, missing or excluded data shall not be substituted and bias corrected data shall not be used."

Department's Response for Request #5: The Department concurs with the request and will add Specific Condition 23.c., which will read as follows:

CEM Systems: The permittee shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) to measure and record the emissions of NO_X from the combustion turbine in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards of this section. All continuous monitoring systems shall be installed and functioning within the required performance specification by the time of the initial performance tests.

a. *NO_X Monitor:* Each NO_X monitor shall be certified pursuant to the specifications of 40 CFR 75 and comply with the applicable requirements of 40 CFR 60 Subpart KKKK. Quality assurance procedures shall conform to the requirements of 40 CFR 75. The ~~annual and required~~ RATA tests required for the NO_X monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60.

b. *Diluent Monitor:* The oxygen (O_2) or carbon dioxide (CO_2) content of the flue gas shall be monitored at the location where NO_X is monitored to correct the measured emissions rates to 15% oxygen. If a CO_2 monitor is installed, the oxygen content of the flue gas shall be calculated using F-factors that are appropriate for the fuel fired. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75.

c. For purposes of determining compliance with the CEMS emissions standards of the permit, missing or excluded data shall not be substituted and bias corrected data shall not be used.

[Rules 62-4.070(3), 62-210.800, 62-212.400(BACT) and 62-297.520, F.A.C.]

Permit Revision Request #6: The applicant requested to add the following language in Specific Condition 23.b. to clarify that the use of diluent cap is allowed:

"For any hour in which the hourly average O_2 concentration exceeds 19.0 percent (or the hourly average CO_2 concentration is less than 1.0 percent CO_2), a diluent cap value of 19.0 percent O_2 or 1.0 percent CO_2 (as applicable) may be used in the emission calculations."

Department's Response for Request #6: 40 CFR 60.4350 (Subpart KKKK) allows the use of diluent cap. Therefore, the Department will add the language of diluent cap as requested by the applicant. Specific Condition 23.b. will read as follows:

"*Diluent Monitor*: The oxygen (O_2) or carbon dioxide (CO_2) content of the flue gas shall be monitored at the location where NOx is monitored to correct the measured emission rates to 15% oxygen. If a CO_2 monitor is installed, the oxygen content of the flue gas shall be calculated using F-factors that are appropriate for the fuel fired. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75. For any hour in which the hourly average O_2 concentration exceeds 19.0 percent (or the hourly average CO_2 concentration is less than 1.0 percent CO_2), a diluent cap value of 19.0 percent O_2 or 1.0 percent CO_2 (as applicable) may be used in the emission calculations."

[Rules 62-4.070(3), 62-210.800, 62-212.400(BACT), ~~and~~ 62-297.520, F.A.C. and 40 CFR 60.4350]

Permit Revision Request #7: The applicant requested that it be allowed ten (10) calendar days after the end of each calendar month to complete the monthly fuel logs required under Specific Condition 25. The current requirement is to record and calculate the monthly operational data within five (5) calendar days.

Department's Response for Request #7: Based on the requirements of some of the current permits issued by the Department, the applicant will be given fifteen (15) calendar days after the end of each calendar month to record and calculate the monthly operational data. This will provide consistency between the Department permits. Therefore, Specific Condition 25 will read as follows:

Monthly Operations Summary: By the ~~fifth~~ 15th calendar day of each month, the permittee shall record the following for each fuel in a written or electronic log for the combustion turbine for the previous month of operation: hours of operation for the month and for the rolling 12-month total. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. The fuel consumption shall be monitored in accordance with the provisions of 40 CFR 75 Appendix D.

[Rules 62-4.070(3) and 62-212.400(PSD), F.A.C.]

D. Processing Schedule

07-11-08: Received the application for a minor source air pollution construction permit. Application complete.

II. APPLICABLE REGULATIONS

State Regulations

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

Chapter	Description
62-4	Permitting Requirements
62-204	Ambient Air Quality Requirements, PSD Increments, and Federal Regulations Adopted by Reference
62-210	Permits Required, Public Notice, Reports, Stack Height Policy, Circumvention, Excess Emissions, and Forms
62-212	Preconstruction Review, PSD Review and BACT, and Non-attainment Area Review and LAER
62-213	Title V Air Operation Permits for Major Sources of Air Pollution
62-296	Emission Limiting Standards
62-297	Test Methods and Procedures, Continuous Monitoring Specifications, and Alternate Sampling Procedures

Federal Regulations

The Environmental Protection Agency establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 identifies New Source Performance Standards (NSPS) for a variety of industrial activities. The new combustion turbine (CT No. 8) will be subject to 40 CFR 60, Subpart A: General Provisions for NSPS Sources and 40 CFR 60, Subpart KKKK: Standards of Performance for Stationary Combustion Turbines for which Construction is Commenced after February 18, 2005.

General PSD Applicability

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

- 250 tons per year or more of any regulated air pollutant, or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the 28 PSD Major Facility Categories [Rule 62-210.200(Major Stationary Source), F.A.C.], or
- 5 tons per year of lead.

For new projects at PSD-major sources, each regulated pollutant is reviewed for PSD applicability based on emissions thresholds known as the "Significant Emission Rates" listed in Rule 62-210.200, F.A.C. Pollutant emissions from the project exceeding these rates are considered "significant" and the applicant must employ the Best Available Control Technology (BACT) to minimize emissions of each such pollutant and evaluate the air quality impacts. Although a facility may be "major" with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

A PSD permit was issued in 2007 for the simple cycle CT No. 8 construction project that is nearing completion. No changes in permitted emissions, production or fuel use limitations are requested.

The key definition of "major source modification" is given at Rule 62-210.200 (192), F.A.C. as follows:

(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.

For emissions units (such as CT No. 8) that have not begun normal operations, actual emissions are defined as follows per Rule 62-210.200 (11):

(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.

JEA believes that CT No. 8 will comply with the present emission limits of the project. Because actual emissions equal the potential emissions from CT No. 8 and also equal the permitted emissions from CT No. 8, there will not be a significant net emission increase of pollutants. Therefore PSD does not apply to this project.

III. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. No air quality modeling analysis is required because the project does not result in a significant increase in emissions. Syed Arif is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at the Department's Bureau of Air Regulation at Mail Station #5505, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.