Florida Municipal Power Agency (FMPA)
Title V Air Operation Permit Renewal
Permit No. 0870003-018-AV

APPLICANT

The applicant for this project is Florida Municipal Power Agency. The applicant's responsible official and mailing address are: Mr. Edward Garcia, Director of Generation, Keys Energy Services, Stock Island Power Plant, P.O. Box 6100, Key West, Florida 33041-6100.

FACILITY DESCRIPTION

The applicant operates the existing Stock Island Power Plant, which is located in Monroe County at 6900 Front Street in Stock Island, Florida.

This facility consists of: eight regulated emission units with a total generating capacity of 128.64 megawatts (MW). There is a diesel peaking unit, a black start diesel engine (used solely to start the combustion turbines), two regulated diesel generators, four simple cycle combustion turbines, and miscellaneous unregulated units. To reduce pollution, a combination of control techniques is used including water injection, ignition timing retardation, and low sulfur fuel oil. This facility has an Acid Rain Retired Unit Exemption (Ralph Garcia Steam Plant, which was removed from the site in 2005) and Phase II Acid Rain New Unit Exemptions: D-1 and D-2 (EU005 and EU006, respectively); and, CT-1, CT-2 and CT-3 (EU007, EU008 and EU009).

Emissions unit 003 (diesel peaking unit #2) is an existing compression ignition (CI) engine, which was reconstructed in 2010, is a Haynes Corporation AHYNN0645E3B diesel fuel fired reciprocating internal combustion engine (RICE) driven peaking generator. This CI engine was previously subject to regulation pursuant to 40 CFR 63, Subpart ZZZZ, as an existing engine, but now meets the Subpart ZZZZ requirements by complying with the requirements of 40 CFR 60, Subpart IIII, and 40 CFR 80, since it was reconstructed after the NSPS applicability dates. Air construction permit No. 0870003-013-AC limited the yearly hours of operation to 2,500 in order to avoid triggering the best available control technology (BACT) requirements within the prevention of significant deterioration (PSD) rules. Because the facility only has one fuel oil receiving tank, all fuel oil used at the site is now ultra low sulfur distillate (ULSD) oil in order to comply with the fuel limit for this engine of 0.0015% sulfur.

Emissions units 005 and 006 are each an 8.8 MW (nominal) electric Fairbanks Morse compression ignition reciprocating internal combustion engine (RICE) driven generator (Model PC-2.6V) which burns No. 2 distillate fuel oil. These CI engines are subject to regulation pursuant to 40 CFR 63, Subpart ZZZZ, as existing engines. Each has a maximum heat input rate of 85.4 million British thermal units per hour (MMBtu/hr). Sulfur dioxide emissions are controlled by limiting the sulfur content of the No. 2 fuel oil to 0.0015% by weight. Carbon monoxide emissions are controlled by a diesel oxidation catalyst. Nitrogen oxides (NO_X) emissions are controlled by ignition timing retardation and by limiting the hours of operation. NO_X emissions are continuously monitored.

Emissions unit 007 is a General Electric (GE) Frame 5 model PG5341 combustion turbine (CT) equipped with water injection for fuel oil firing. It has a rated capacity of 23.5 MW at International Organization for Standardization (ISO) conditions. The GE CT has a heat input of 312 MMBtu per hour (at 59° F) while burning oil. The CT is fired with No. 2 fuel oil with a sulfur content not to exceed 0.05% by weight. NO_X emissions are controlled by a water injection system. The water to fuel ratio is continuously monitored.

Emissions units 008 and 009 are two refurbished General Electric Model MS-5001R 19.77 MW combustion turbines. Each emissions unit has a rated capacity of 19.77 MW. The heat input for each is 305 MMBtu/hr. Each emissions unit operating hours are limited to 4,000 hour per year and the combined hours are also limited to 4,000 hours per year.

The units 007, 008 and 009 are not affected by the Acid Rain Program, since they meet the exemption requirements of 40 CFR 72.7 by serving a generator with less than 25 MW.

Emissions unit 011 is a General Electric LM 6000 PC SPRINT Combustion Turbine-Electrical Generator with spray intercooling and water injection. It has a rated capacity of 48 MW at ISO conditions. The maximum heat input to the combustion turbine from firing No. 2 fuel oil is 434 MMBtu per hour lower heating value (LHV)

based on the following: 100% base load, lower heating value of No. 2 fuel oil, and a compressor inlet air temperature of 41° F. The CT is fired with No. 2 fuel oil with a sulfur content not to exceed 0.05% by weight. NO_X emissions are controlled by a spray cooling and water injection system when operational hours are less than or equal to 2,500 hours based on a 12 month rolling total. If operational hours exceed 2,500 hours a selective catalytic reduction (SCR) system must be installed to help control NO_X emissions. The water to fuel ratio is continuously monitored.

Emissions Unit 014 is a black start engine used for starting EU 007. It is a 450 HP Detroit Diesel Company, diesel fired engine installed in 1978. This CI engine is subject to regulation pursuant to 40 CFR 63, Subpart ZZZZ, as an existing engine

All emissions units at the Stock Island Power Plant are operated for peaking or emergency purposes only. This facility is used when the loads peak, usually during the summer, and when there are emergency situations such as hurricanes.

Also included in this permit are miscellaneous unregulated/insignificant emissions units and/or activities.

PROJECT DESCRIPTION

The purpose of this permit is to renew the Title V air operation permit for the above referenced facility and to incorporate requested changes concerning excess emissions and testing requirements for various pollutants. The changes are implemented by revising the underlying air construction permits via an air construction permit revision (permit No. 0870003-017-AC) that was issued concurrently with this Title V permit renewal.

The proposed revisions that were addressed in permit No. 0870003-017-AC are as follows:
(1) To remove the requirements for the Medium Speed Diesel Generators (MSDs) to conduct permit renewal testing for PM, in stack testing for SO_2, and for VOC if the CO standards are met. For Emissions Units 005 and 006, FMPA proposes to remove the testing requirement for PM, the in stack testing requirement for SO_2, and the VOC testing requirement if the CO emission standards are met. The request to remove the PM and in-stack SO_2 testing requirements is based on the 40 CFR 63, Subpart ZZZZ requirement for the emissions units to exclusively fire ultra-low sulfur diesel as of May 3, 2013.
(2) To add "tuning, load change, full speed no load testing, and compressor blade drying" to allowable excess emissions.
(3) To waive the periodic compliance test requirements for those parameters for which compliance is demonstrated continuously. When compliance with a standard is demonstrated continuously using CEMS, annual compliance testing and testing prior to permit renewal is not necessary.
(4) To change the New Source Performance Standards excess emissions reporting requirements from quarterly to semiannually.
(5) Administrative changes that include typographical corrections, addition of equivalent test methods, and addition of permitting notes.

PROCESSING SCHEDULE AND RELATED DOCUMENTS

Application for a Title V Air Operation Permit Renewal received July 10, 2013.

PRIMARY REGULATORY REQUIREMENTS

HAP: The facility is not identified as 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 62-213, 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.

NSPS: The facility operates units subject to the New Source Performance Standards (NSPS) of 40 Code of Federal Regulations (CFR) 60.

NESHAP: The facility operates units subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

CAIR: The facility is subject to the Clean Air Interstate Rule (CAIR) set forth in Rule 62-296.470, F.A.C.

Siting: None of the emission units were originally certified pursuant to the power plant siting provisions of Chapter 62-17, F.A.C.

CAM: Compliance Assurance Monitoring (CAM) does not apply to any of the units at the facility. None of the units at the facility are subject to an emission limitation or standard other than NSPS, NESHAP, acid rain requirements, or a limitation for which the permit specifies continuous compliance. Also, none of the emission units use a control device to achieve compliance with any emission limitation or standard, or have potential pre-control device emissions of a regulated air pollutant that is equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

GHG: The facility is a major source of green house gas pollutants.

PROJECT REVIEW

Changes Adopted

Changes to permit No. 0870003-016-AV made as part of this renewal project are shown in ~~strike through~~ format for deletions and in double underline format for additions. For ease of identification, all changes have also been highlighted in yellow within the permit document.

1. To incorporate the changes established in Specific Condition **5.** of permit No. 0870003-017-AC, Specific Condition **A.19.** is changed as follows:

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
3A	Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources
5	Determination of Particulate Emissions from Stationary Sources
6C	Determination of Sulfur Dioxide Emissions from Stationary Sources
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer
ASTM D6348-03	Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy
ASTM D6522-00	Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers

Method	Description of Method and Comments
ASTM D 2880-71, ASTM D 6522–00 (2005) or latest ASTM editions	Standard Methods by the American Society of Testing and Materials for Fuel Analysis

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 unless prior written approval is received from the Department. [Rules 62-297.401, and 62-297.440, F.A.C., Permit Nos. AC44-152197/PSD-FL-135, Specific Condition 5. & 0810010-017-AC, Specific Condition 5.]

{Permitting Note: The oil sampling and analysis methods and procedures, including later or equivalent versions of the test methods, specified in 40 CFR 60.335 or 40 CFR 75 Appendix D may be used to comply with this requirement.}

2. To incorporate the changes established in Specific Condition **5.** of permit No. 0870003-017-AC, Specific Condition **A.21.** is changed as follows:

Annual Compliance Tests Required. During each federal fiscal year (October 1st to September 30th), each EU005 and EU006 shall be tested to demonstrate compliance with the emissions standards for ~~NO_X,~~ SO_2, and VE~~, and PM~~. Compliance with the SO_2 testing requirement can be accomplished using fuel sulfur analysis in accordance with Specific Condition **A.19.** Since compliance with the NO_X standard is demonstrated continuously using the CEMS, annual NO_X testing using Method 7E and/or Method 20 is waived. PM, NO_X and VOC stack tests shall be performed upon request if the Department has reason to believe the limits are not being met. [Rule 62-297.310(7), F.A.C., ~~and~~ Permit Nos. AC44-152197/PSD-FL-135, Specific Condition 5, & 0810010-017-AC, Specific Condition 5.]

3. To incorporate the changes established in Specific Condition **5.** of permit No. 0870003-017-AC, Specific Condition **A.22.** is changed as follows:

Compliance Tests Prior To Renewal. Compliance tests shall be performed for ~~NO_X,~~ SO_2, VE, ~~PM,~~ and CO ~~and VOC~~ once every 5 years. VOC emission tests are not required prior to permit renewal provided the CO emission standards are met. Compliance with the five year CO testing requirement can be accomplished by submitting the most recent 40 CFR 63, Subpart ZZZZ, CO test performed as required by Specific Condition **A.23.** Compliance with the SO_2 testing requirement can be accomplished using fuel sulfur analysis in accordance with Specific Condition **A.19.** Since compliance with the NO_X standard is demonstrated continuously using the CEMS, permit renewal NO_X testing using Method 7E and/or Method 20 is waived. The tests shall occur prior to obtaining a renewed operating permit to demonstrate compliance with the emission limits in Specific Conditions **A.8. – A.13.** ~~For CO, the most recent compliance test conducted to comply with Specific Condition **A.23.** can be used for compliance with this condition~~ PM, NO_X and VOC stack tests shall be performed upon request if the Department has reason to believe the limits are not being met. [Rules 62-210.300(2)(a) and 62-297.310(7)(a) & (b), F.A.C.; and, Permit Nos. AC44-152197/PSD-FL-135 & 0810010-017-AC, Specific Condition 5.]

4. Specific Condition **A.34.** is changed as follows by adding a clarifying permitting note:

Fuel Oil Recordkeeping. In order to document continuing compliance with the hourly SO_2 emission limit of Specific Condition **A.9.** and the fuel sulfur limit of Specific Condition **A.3.**, the permittee shall keep records of the sulfur content, in percent by weight, of all the fuel burned. The records shall be based upon either vendor provided as-shipped analyses or upon analyses of as-received samples. The record shall be maintained for a minimum of five years and shall be made available to the Department upon request. [Rule 62-213.440(1)(b)2.b., F.A.C. and Permit No. AC44-221256/PSD-FL-135]

{Permitting Note: The oil sampling and analysis methods and procedures, including later or equivalent versions of the test methods, specified in 40 CFR 60.335 or 40 CFR 75 Appendix D may be used to comply with this requirement.}

5. Subsection B Description is changed as follows to correct a typographical error:

Emissions unit 007 (EU007) is a General Electric (GE) Frame 5 model PG5341 combustion turbine (CT) equipped with water injection for fuel oil firing. The unit has a rated capacity of 23.5 MW at International Organization for Standardization (ISO) conditions. NO_X emissions are controlled by a water injection system. The water to fuel ratio is continuously monitored. EU007 has a stack height of ~~35~~ 68 feet with a 12.2 feet exit diameter, a 910 °F exit temperature, and 1,020,201 acfm actual volumetric flow rate. This turbine began operation January 1, 1996.

6. To incorporate the changes established in Specific Condition **4.** of permit No. 0870003-017-AC, Specific Condition **B.10.** is changed as follows:

Excess Emissions Allowed. Excess emissions resulting from startup, shutdown, tuning, load changes, full speed no load testing, compressor blade drying, or malfunction, ~~or load change~~ shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period (except as provided for during Other Limited Use Operations) unless specifically authorized by the Department for longer duration. [Rules 62-210.700(1), F.A.C.; Permit Nos. AC44 245399/PSD-FL-210, Specific Condition B.~~1(c)~~2. & 0870003-017-AC, Specific Condition 4.]

7. Specific Condition **B.11.** is changed as follows to remove obsolete language:

Procedures for Excess Emissions ~~Allowed~~. The permittee ~~shall~~ has provided a general description of the procedures to be followed during periods of start up, shutdown, malfunction, or load change to ensure that the best operational practices to minimize emissions will be adhered to and the duration of any excess emissions will be minimized. The description may be updated as needed by submitting such update to the Department within thirty days of implementation. [Permit Nos. AC44 245399/PSD-FL-210, Specific Condition B.~~1(c)~~2. & 0870003-017-AC, Specific Condition 4.]

8. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **B.12.** is changed as follows:

Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, tunings, load changes, full speed no load testing activities, compressor blade drying activities, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C. and Permit Nos. 0870003-007-AC/PSD-FL-348 & 0870003-017-AC, Specific Condition 3.]

9. Specific Condition **B.15.** is changed as follows by adding a clarifying permitting note:

Fuel Oil Monitoring. The No. 2 fuel oil shall be monitored for the sulfur content. The frequency of the determination shall be in accordance with the requirements of 40 CFR 60.334. Testing for sulfur content of the fuel oil in the storage tanks shall be conducted upon each occasion that fuel is transferred to the storage tanks. Testing for fuel oil lower heating value shall also be conducted on the same schedule. [Permit No. AC44 245399/PSD-FL-210 and 40 CFR 60.334]

{Permitting Note: The oil sampling and analysis methods and procedures, including later or equivalent versions of the test methods, specified in 40 CFR 60.335 or 40 CFR 75 Appendix D may be used to comply with this requirement.}

10. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **B.17.** is changed as follows:

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

Method	Description of Method and Comments
1	Sample and Velocity Traverses for Stationary Sources
3	Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight
3A	Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources
5	Method for Determining Particulate Matter Emissions (All PM is assumed to be PM_{10}.)
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer
ASTM D4294-98	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy – Dispersive X-ray Fluorescence Spectrometry
ASTM D129-09, D2622-98, D4294-02, D1266-98, D5453-00, or D1552-01	Fuel Sampling Methods from the American Standards for Testing and Materials

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 unless prior written approval is received from the Department. [Rules 62-297.401 and 62-297.440, F.A.C.; 40 CFR 60.335; and, Permit Nos. AC44-245399/PSD-FL-210, Specific Condition C.1. & 0870003-017-AC, Specific Condition 4.]

{Permitting Note: The oil sampling and analysis methods and procedures, including later or equivalent versions of the test methods, specified in 40 CFR 60.335 or 40 CFR 75 Appendix D may be used to comply with this requirement.}

11. To incorporate the changes established in Specific Condition **4.** of permit No. 0870003-017-AC for the removal of annual PM testing requirements, Specific Condition **B.19.** is changed as follows:

Annual Compliance Tests Required. During each federal fiscal year (October 1st to September 30th), EU007 shall be tested to demonstrate compliance with the emissions standards for ~~PM,~~ VE, CO, NO_X and SO_2. Annual compliance tests shall be performed on the CT if the No. 2 fuel was used for more than 400 hours in the preceding 12-month period. [Rule 62-297.310(7), F.A.C. and Permit Nos. AC44-245399/PSD-FL-210 & 0870003-017-AC Specific Condition 4.]

12. To incorporate the changes established in Specific Condition **4.** of permit No. 0870003-017-AC, Specific Condition **B.26.** is changed as follows:

Reporting Schedule. The following reports and notifications shall be submitted to the Compliance Authority:

Report	Reporting Deadline	Related Condition(s)
Notice of Excess Emissions	~~Quarterly~~ Semi-Annual	**B.14., B 29.**

[40 CFR 60.334.; 0870003-017-AC, Specific Condition 4.]

13. To incorporate the changes established in Specific Condition **4.** of permit No. 0870003-017-AC, Specific Condition **B.29.** is changed as follows:

Reporting of Excess Emissions and Monitoring System. The owner or operator shall submit ~~quarterly~~ semi-annual reports of excess emissions and monitor downtime as required by 40 CFR 60.334(j) and reports of excess emissions and monitoring system performance report in accordance with 40 CFR 60.7(c). [40 CFR 60.334 and 40 CFR 60.7(c) and (d); and, Permit No. 0870003-017-AC, Specific Condition **4.**]

14. To incorporate the changes established in Specific Condition **4.** of permit No. 0870003-017-AC, Specific Condition **B.31.** is added:

Other Limited Use Operations. Excess emissions which occur during any of the following limited use operational periods are permitted provided that the activities are performed in accordance with the manufacturer's specifications (or industry standards).

a. *Tuning.* Tuning means operating the gas turbine at intermittent loads throughout the full load range in order to adjust and tune the water injection system.
b. *Compressor Blade Drying.* Following a compressor blade wash, the permittee may operate a gas turbine at very low loads to heat and dry the compressor blades. {Permitting Note: A gas turbine would typically operate at approximately 10% of base load or less to perform compressor blade drying.}
c. *Full Speed No Load Testing.* As a periodic maintenance practice, the permittee may perform full speed no load tests. {Permitting Note: An example of full speed no load testing includes, but is not limited to, checking the synchronizing instrumentation to assure safe and reliable connection to the electrical grid.}

[Permit No. 0870003-017-AC, Specific Condition 4.]

15. To incorporate the changes established in Specific Condition **2.** of permit No. 0870003-017-AC, Specific Condition **C.12.** is changed as follows:

Excess Emissions Allowed. Excess emissions resulting from startup, shutdown, tuning, load change, full speed no load testing, compressor blade drying or malfunction shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period (except as provided for during Other Limited Use Operations) unless specifically authorized by the Department for longer duration. [Rules 62-210.700(1); and, Permit No. 0870003-017-AC, Specific Condition 2.]

16. To incorporate the changes established in Specific Condition **2.** of permit No. 0870003-017-AC, Specific Condition **C.13.** is changed as follows:

Excess Emissions Prohibited: Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, tunings, load changes, full speed no load testing activities, compressor blade drying activities, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.; Permit Nos. 0870003-007-AC/PSD-FL-348 & 0870003-017-AC, Specific Condition 2.]

17. To incorporate the changes established in Specific Condition **4.** of permit No. 0870003-017-AC, Specific Condition **C.15.** is changed as follows by adding a permitting note:

Critical Fuel Parameters. The Permittee shall monitor sulfur content, nitrogen content, and the lower heating value of the fuel being fired in the turbine. The frequency of determination of these values shall be as follows:

a. If the turbine is supplied its fuel from a bulk storage tank, the values shall be determined on each occasion that fuel is transferred to the storage tank from any other source.
b. If the turbine is supplied its fuel without intermediate bulk storage, the values shall be determined and recorded daily. Owners, operators or fuel vendors may develop custom schedules for determination of the values based on the design and operation of the affected facility and the characteristics of the fuel supply. These custom schedules shall be substantiated with data and must be approved by the Bureau of Air Regulation before they can be used to comply with 40 CFR 60.334(b).

[AC44-245399/PSD-FL-210; 40 CFR 60.334(i); and, Permit No. 0870003-003-AC, Specific Condition A.12.]

{Permitting Note: The oil sampling and analysis methods and procedures, including later or equivalent versions of the test methods, specified in 40 CFR 60.335 or 40 CFR 75 Appendix D may be used to comply with this requirement.}

18. To incorporate the changes established in Specific Condition **4.** of permit No. 0870003-017-AC, Specific Condition **C.17.** is changed as follows:

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

Method	Description of Method and Comments
1	Sample and Velocity Traverses for Stationary Sources
3	Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight
3A	Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25A	Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer
ASTM D6522-00	Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers

{Permitting Note: The oil sampling and analysis methods and procedures, including later or equivalent versions of the test methods, specified in 40 CFR 60.335 or 40 CFR 75 Appendix D may be used to comply with this requirement.}

19. To incorporate the changes established in Specific Condition **2.** of permit No. 0870003-017-AC, Specific Condition **C.24.** is changed as follows:

Reporting Schedule. The following reports and notifications shall be submitted to the Compliance Authority:

Report	Reporting Deadline	Related Condition(s)
Notice of Excess Emissions	Quarterly and Semi-Annual	**C.14, C.27, C.28**

20. To incorporate the changes established in Specific Condition **2.** of permit No. 0870003-017-AC, Specific Condition **C.27.** is changed as follows:

Excess Emissions Report. The permittee shall submit a ~~quarterly~~ semi-annual excess emissions and monitoring systems performance report of the continuous monitoring system for any one-hour period during which the average water to fuel ratio falls below the water-to-fuel ratio determined to demonstrate compliance with Specific Condition **C.6.** [40 CFR 60.334(j)(1)(i)(A)and Permit No. 0870003-017-AC, Specific Condition 2.]

21. To incorporate the changes established in Specific Condition **2.** of permit No. 0870003-017-AC, Specific Condition **C.30.** is added:

Other Limited Use Operations. Excess emissions which occur during any of the following limited use operational periods are permitted provided that the activities are performed in accordance with the manufacturer's specifications (or industry standards).

a. *Tuning.* Tuning means operating the gas turbine at intermittent loads throughout the full load range in order to adjust and tune the water injection system.
b. *Compressor Blade Drying.* Following a compressor blade wash, the permittee may operate a gas turbine at very low loads to heat and dry the compressor blades. {Permitting Note: A gas turbine would typically operate at approximately 10% of base load or less to perform compressor blade drying.}
c. *Full Speed No Load Testing.* As a periodic maintenance practice, the permittee may perform full speed no load tests. {Permitting Note: An example of full speed no load testing includes, but is not limited to, checking the synchronizing instrumentation to assure safe and reliable connection to the electrical grid.}

[Permit Nos. 0870003-003-AC & 0870003-017-AC, Specific Condition 2.]

22. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.7.** is changed as follows:

Excess Emissions Allowed. Excess emissions resulting from startup, shutdown, tuning, load change, full speed no load testing, compressor blade drying, or malfunction shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period (except as provided for during Other Limited Use Operations, see Specific Condition **D.1.9.**e.) unless specifically authorized by the Department for longer duration. In case of excess emissions resulting from malfunctions, each owner or operator shall notify the Department or the appropriate Local Program in accordance with Rule 62-4.130, F.A.C. A written report summarizing each malfunction resulting in excess emissions shall be submitted in a quarterly report (if requested). [Rule 62-210.700(1), F.A.C. and Permit No. 0870003-017-AC, Specific Condition 3.]

23. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.8.** is changed as follows:

Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown, tunings, load changes, full speed no load testing activities, compressor blade drying activities, or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.; and, Permit Nos. 0870003-007-AC/PSD-FL-348 & 0870003-017-AC, Specific Condition 3.]

24. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.9.** is changed as follows:

Definitions.

a. *Excess Emissions* are defined as emissions of pollutants in excess of those allowed by any applicable air pollution rule of the Department, or by a permit issued pursuant to any such rule or Chapter 62-4, F.A.C. The term applies only to conditions which occur during startup, shutdown, or malfunction.
b. *Startup* is defined as the commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions.
c. *Shutdown* is the cessation of the operation of an emissions unit for any purpose.
d. *Malfunction* is defined as any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner.
e. Other Limited Use Operations.
   1. *Tuning.* Tuning means operating the gas turbine at intermittent loads throughout the full load range in order to adjust and tune the water injection system.
   2. *Compressor Blade Drying.* Following a compressor blade wash, the permittee may operate a gas turbine at very low loads to heat and dry the compressor blades. {Permitting Note: A gas turbine would typically operate at approximately 10% of base load or less to perform compressor blade drying.}
   3. *Full Speed No Load Testing.* As a periodic maintenance practice, the permittee may perform full speed no load tests. {Permitting Note: An example of full speed no load testing includes, but is not limited to, checking the synchronizing instrumentation to assure safe and reliable connection to the electrical grid.}

[Rule 62-210.200, F.A.C.; and, Permit Nos. 0870003-007-AC/PSD-FL-348, Specific Condition A.20.e. & 0870003-017-AC, Specific Condition 3.]

25. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.10.** is changed as follows:

Excess Emissions ~~During Startup, Shutdown, Malfunction~~.

a. During startup and shutdown, visible emissions excluding water vapor shall not exceed 20% opacity for more than 2 hours in any 24-hour block averaging period.

b. During all startups, shutdowns, tunings, load changes, full speed no load testing activities, compressor blade drying activities, and malfunctions, the NO_X continuous emissions monitoring system (CEMS) shall monitor and record emissions. Up to 2 hours (120 minutes) of monitoring data during any 24-hour block averaging period may be excluded from continuous compliance demonstrations as a result of startups, shutdowns, load changes, and documented malfunctions. However, only data obtained during startups, shutdowns, load changes, and documented malfunctions may be used for the 2 hour exclusion period. Other arbitrary high readings may not be excluded from compliance averaging periods.

c. A documented malfunction means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile, or electronic mail. In case of malfunctions, the permittee shall notify the Compliance Authority within one working day. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department.

d. Other Limited Use Operations. Excess emissions which occur during Other Limited Use operational periods (as defined in Specific Condition **D.1.9.**(e)) are permitted provided that the activities are performed in accordance with the manufacturer's specifications (or industry standards).

[Rules 62-210.700(1), (5), (6) and 62-4.130, F.A.C.; and, Permit Nos. 0870003-007-AC/PSD-FL-348, Specific Condition A.21. & 0870003-017-AC, Specific Condition 3.]

26. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.13.** is changed as follows:

NO_X CEMS Data Requirements.

a. *Data Collection*. Emissions shall be monitored and recorded at all times including startup, operation, shutdown, and malfunction except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. A valid hour is one in which at least 1 data point is recorded in each quadrant during which the unit was operating.

b. *Data Reporting*. Data collected by the CEMS shall be used to demonstrate continuous compliance with the emissions standards specified for each 24-hour block averaging period. The block averaging period shall run from midnight to midnight of each day. Emissions shall be reported in units of ppmvd corrected to 15% oxygen for each hour of operation. The compliance averages shall be determined by calculating the arithmetic average of a 24-hour block of all valid hourly emission rates. A minimum of 1 valid hour shall be required to calculate a 24-hour block average. When a monitoring system reports emissions in excess of the standards allowed by this permit, the permittee shall notify the Compliance Authority within one (1) 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. The Department may request a written report summarizing the excess emissions incident. The permittee shall also report excess emissions ~~in a quarterly report~~ as required in specific condition **D.1.22.** of this permit.

c. *Data Exclusion*. As provided in **D.1.9.** and **D.1.10**., valid hourly emission rates shall not include periods of start up, shutdown, tuning, load change, full speed no load testing, compressor blade drying, or documented malfunction as described under the excess emissions requirements of this permit. Up to 2 hours of monitoring data during any 24-hour block averaging period may be excluded from continuous compliance demonstrations as a result of startups, shutdowns, load changes, and documented malfunctions. CEMS data collected during Other Limited Use Operations may be excluded from the compliance averages provided that the activities are performed in accordance with the manufacturer's specifications (or industry standards).

[Rules 62-4.130, 62-4.160(8), 62-204.800 and 62-210.700 ~~and 62-297.520~~, F.A.C.; 40 CFR 60.7; and, Permit Nos. 0870003-007-AC/PSD-FL-348, Specific Condition 36. & 0870003-017-AC, Specific Condition 3.]

27. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.15.** is changed as follows:

Annual Compliance Tests Required. During each federal fiscal year (October 1st to September 30th), EU011 shall be tested to demonstrate compliance with the emissions standards for ~~NO_X,~~ CO, VE and NH_3 (See Specific Condition **D.3.13.** as it applies if 12-month rolling operational hours exceed 2,500). ~~If conducted at permitted capacity, NO_X emissions data collected during the annual NO_X continuous monitor RATA required pursuant to 40 CFR 75 may be substituted for the required annual performance test.~~ In the event that the operation of the CT is less than 400 hours per year, annual testing is not required for that year. [Rule 62-297.310(7), F.A.C.; and, Permit Nos. 0870003-007-AC/PSD-FL-348 & 0870003-017-AC, Specific Condition 3.]

*{Permitting Notes: Ammonia slip testing is only required after cumulative hours of operation exceed 1,500 hours starting from the initial installation of the SCR catalyst. See Specific Condition **D.3.13**.* Since compliance with the NO_X standard is demonstrated continuously using the CEMS, annual and renewal NO_X testing using Method 7E and/or Method 20 was waived by specific Condition 3 of permit No. 0870003-017-AC.*}*

28. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.16.** is changed as follows:

Compliance Tests Prior To Renewal. Compliance tests shall be performed for ~~NO_X,~~ CO and VE once every 5 years. The tests shall occur prior to obtaining a renewed operating permit to demonstrate compliance with the emission limits in Specific Conditions **D.2.4. – D.2.6. (**if the cumulative operating hours are ≤ 2,500 hours**) and D.3.5. – D.3.7. (**if the cumulative operating hours are > 2,500 hours**).** VOC emission tests are not required prior to permit renewal provided the CO emission standards are met. These tests shall be conducted within the ~~12-month period prior to renewing~~5-year term of the air operation permit. For pollutants required to be tested annually, the permittee may submit the most recent annual compliance test to satisfy the requirements of this provision. Testing for ammonia slip (as it applies if 12-month rolling operational hours exceed 2,500) in accordance with the requirements of Specific Condition **D.3.13.** will meet the requirements of this condition. [Rules 62-210.300(2)(a) & 62-297.310(7)(a), F.A.C.; and, Permit Nos. 0870003-007-AC/PSD-FL-348 & 0870003-017-AC, Specific Condition 3.]

29. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC and to match the original requirements in Specific Condition 42 of permit No. 0870003-007-AC/PSD-FL-348, Specific Condition **D.1.22.** is changed as follows:

Excess Emissions Reporting.

a. If excess NO_X or visible emissions occur due to malfunction, the permittee shall notify the Compliance Authority within (1) 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 Department may request a written summary report of the incident.

~~a~~b. *NSPS Semi-Annual Reports*. For purposes of reporting emissions in excess of NSPS Subpart GG, excess emissions from the gas turbine are defined as: any operating hour in which the CEMS 4-hr rolling average NO_X concentration exceeds the NSPS NO_X emissions standard identified in Appendix GG; and any monitoring period during which the sulfur content of the fuel being fired in the gas turbine exceeds the NSPS standard identified in Appendix GG. Within thirty (30) days following each calendar semi-annual period, the permittee shall submit a report on any periods of excess emissions that occurred during the previous semi-annual to the Compliance Authority.

{Note: If there are no periods of excess emissions as defined in NSPS Subpart GG, a statement to that effect may be submitted with the SIP Quarterly Report to suffice for the NSPS Semi-Annual Report.}

~~b~~c. *SIP Quarterly Report*: Within 30 days following the end of each calendar-quarter, the permittee shall submit a report to the Compliance Authority summarizing periods of NO_X emissions in excess of the BACT permit standards at Specific Conditions ~~**D.1.10.**~~ **D.2.5.** and **D.3.6.** following the NSPS format in 40 CFR 60.7(c), Subpart A. Periods of startup, shutdown, tuning, load change, full speed no load testing, compressor blade drying, and malfunction, shall be monitored, recorded and reported as excess emissions

when emission levels exceed the standards specified in this permit. In addition, the report shall summarize the CEMS systems monitor availability for the previous quarter.

[Rules 62-4.130, 62-204.800 and 62-210.700(6), F.A.C.; 40 CFR 60.7 and 60.332(j)(1); and, Permit Nos. 0870003-007-AC/PSD-FL-348, Specific Condition 42. & 0870003-017-AC, Specific Condition 3.]

30. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.24.** is changed as follows:

Monthly Operations Summary. By the fifth calendar day of each month, the permittee shall record the hours of operation and amount of fuel fired for the combustion turbine. The information shall be recorded in a written or electronic log and shall summarize the previous month of operation and the previous 12 months of operation. All hours of operation (including hours during startups, shutdowns, and malfunctions) shall be included in the demonstration of compliance with the 12-month fuel usage limitations (as it applies if 12-month rolling operational hours exceed 2,500). Information recorded and stored as an electronic file shall be available for inspection and/or printing within ~~at least one day~~ three days of a request from the Compliance Authority. [Rule 62-4.160(15), F.A.C.; and, Permit Nos. 0870003-007-AC/PSD-FL-348, Specific Condition 40. & 0870003-017-AC, Specific Condition 3.]

31. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.1.26.** is changed as follows:

Hours of Operation: Using a component of the gas turbine control system, the permittee shall monitor and record the hours of gas turbine operation. Within five working days following the end of each calendar month, the permittee shall record the total hours of operation (including hours during startups, shutdowns, tuning, load changes, full speed no load testing, compressor blade drying, and malfunctions) for the current month, and the total hours of operation for the current month plus the preceding 11 months. [~~Rule 62-204.070, F.A.C. and~~ Permit Nos. 0870003-007-AC/PSD-FL-348, Specific Condition 37. & 0870003-017-AC, Specific Condition 3.]

32. Specific Condition **D.2.9.** is changed as follows by adding the permitting note:

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

Method	Description of Method and Comments
1	Sample and Velocity Traverses for Stationary Sources
3	Gas Analysis for Carbon Dioxide, Oxygen, Excess air, And Dry Molecular Weight
3A	Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
18	Measurement of Gaseous Organic Compound Emissions by Gas Chromatography
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25	Determination of Total Gaseous Nonmethane Organic Emissions as Carbon
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)
ASTM D6522-00	Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers

Method	Description of Method and Comments
ASTM D129-09, D2622-98, D4294-02, D1266-98, D5453-00, or D1552-01	Fuel Sampling Methods from the American Standards for Testing and Materials

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 unless prior written approval is received from the Department. No other test methods may be used for compliance testing unless prior DEP approval is received, in writing, from the DEP Emissions Monitoring Section Administrator in accordance with an alternate sampling procedure specified in Rule 62-297.620, F.A.C. [Rule 62-297.401, F.A.C. and Permit No. 0870003-007-AC/PSD-FL-348]

{Permitting Note: The oil sampling and analysis methods and procedures, including later or equivalent versions of the test methods, specified in 40 CFR 60.335 or 40 CFR 75 Appendix D may be used to comply with this requirement.}

33. To incorporate the changes established in Specific Condition **3.** of permit No. 0870003-017-AC, Specific Condition **D.3.2.** is changed as follows:

Hours of Operation. The combustion turbine ~~may~~is permitted to operate continuously ~~(8,760 hours per year)~~. [Rule 62-210.200(PTE), F.A.C.; and, Permit Nos. 0870003-007-AC/PSD-FL-348 & 0870003-017-AC, Specific Condition 3.]

34. Specific Condition **D.3.11.** is changed as follows by adding the permitting note:

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

Method	Description of Method and Comments
1	Sample and Velocity Traverses for Stationary Sources
3	Gas Analysis for Carbon Dioxide, Oxygen, Excess air, And Dry Molecular Weight
3A	Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25	Determination of Total Gaseous Nonmethane Organic Emissions as Carbon
25A	Method for Determining Gaseous Organic Concentrations (Flame Ionization)
CTM-027	Conditional EPA Test Method 027, Measurement of Ammonia Slip (or equivalent method)
ASTM D6522-00	Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines,

Method	Description of Method and Comments
	Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers
ASTM D129-09, D2622-98, D4294-02, D1266-98, D5453-00, or D1552-01	Fuel Sampling Methods from the American Standards for Testing and Materials

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 unless prior written approval is received from the Department. No other test methods may be used for compliance testing unless prior DEP approval is received, in writing, from the DEP Emissions Monitoring Section Administrator in accordance with an alternate sampling procedure specified in Rule 62-297.620, F.A.C. [Rule 62-297.401, F.A.C. and Permit No. 0870003-007-AC/PSD-FL-348]

{Permitting Note: The oil sampling and analysis methods and procedures, including later or equivalent versions of the test methods, specified in 40 CFR 60.335 or 40 CFR 75 Appendix D may be used to comply with this requirement.}

35. To incorporate the applicable requirements from 40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) for the emergency fire pump, Subsection III.G. has been added to the permit to establish new specific conditions for the fire pump. The emergency fire pump has been assigned emissions unit ID number 015.

Changes Not Adopted

There were a few revision requests made by the applicant that were not adopted. One request was to change excess emissions reporting under Department rules from a quarterly time frame to semi-annual for malfunctions. This request was denied because Rule 62-210.700(6), F.A.C., requires quarterly excess emissions reports due to malfunctions. The second request was to delete annual compliance testing for NO_X and CO on the two 19.77 MW simple cycle combustion turbines (EUs 008 & 009), for NO_X on the 23.5 MW Simple Cycle Combustion Turbine (EU 007) if operated for more than 400 hours on fuel oil in the preceding 12-month period, and all testing requirements for the 48.00 MW Simple Cycle Combustion Turbine (EU 011). No rationale was given for this request and it was denied. These requests were also addressed in the Technical Evaluation and Preliminary Determination document of the concurrent AC permit package.

CONCLUSION

This project renews and revises Title V air operation permit No. 0870003-011-AV. This Title V air operation permit renewal is issued under the provisions of Chapter 403, Florida Statues (F.S.), and Chapters 62-4, 62-210, 62-213 and 62-214, F.A.C.