Florida Department of Environmental Protection

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PERMITTEE

Duke Energy Florida, LLC
6525 Osceola Polk Line Road
Intercession City, Florida 33848

Authorized Representative:
Jeffrey Hart, Manager

Air Permit No. 0970014-017-AC/PSD-FL-180I and 268C
Permit Expires: June 30, 2018
Minor Air Construction Permit
Intercession City Plant
Consolidation of Requirements

PROJECT

This is the final air construction permit, which authorizes consolidates some monitoring, recordkeeping, and reporting requirements across emissions units. The proposed work will be conducted at the existing Intercession City Plant, which is a fossil-fueled electric power plant categorized under Standard Industrial Classification No. 4911. The existing facility is in Osceola County at 6525 Osceola Polk Line Road in Intercession City, Florida. The UTM coordinates are Zone 17, 446.37 kilometers (km) East and 3126 km North.

This final permit is organized into the following sections: Section 1 (General Information); Section 2 (Administrative Requirements); Section 3 (Emissions Unit Specific Conditions); and Section 4 (Appendices). Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of Section 4 of this permit. As noted in the Final Determination provided with this final permit, only minor changes and clarifications were made to the draft permit.

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. This project is subject to the general preconstruction review requirements in Rule 62-212.300, F.A.C. and is not 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.

Upon issuance of this final permit, any party to this order has the right to seek judicial review of it under Section 120.68 of the Florida Statutes by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the clerk of the Department of Environmental Protection in the Office of General Counsel (Mail Station #35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000) and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The notice must be filed within 30 days after this order is filed with the clerk of the Department.

Executed in Tallahassee, Florida

David Lyle Read, P.E.
2017.10.13 09:50:41 -04'00'

For:
Syed Arif, P.E., Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Construction Permit package was sent by electronic mail, or a link to these documents made available electronically on a publicly accessible server, with received receipt requested before the close of business on the date indicated below to the following persons.

Jeffrey Hart, Duke Energy Florida, LLC: Jeffrey.hart@duke-energy.com
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Lynn Scearce, DEP OPC: lynn.scearce@dep.state.fl.us

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Lynn Scearce

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FACILITY DESCRIPTION

The existing facility is a fossil fueled electric power plant. The plant has 14 natural gas- or distillate oil-fired simple-cycle combustion turbines, with a total generating capacity of 1,169 megawatts. The facility consists of the following emissions units.

EU No.	Emission Unit Description
001	Simple Cycle Combustion Turbine Unit No. 1
002	Simple Cycle Combustion Turbine Unit No. 2
003	Simple Cycle Combustion Turbine Unit No. 3
004	Simple Cycle Combustion Turbine Unit No. 4
005	Simple Cycle Combustion Turbine Unit No. 5
006	Simple Cycle Combustion Turbine Unit No. 6
007	Simple Cycle Combustion Turbine Unit No. 7
008	Simple Cycle Combustion Turbine Unit No. 8
009	Simple Cycle Combustion Turbine Unit No. 9
010	Simple Cycle Combustion Turbine Unit No. 10
011	Simple Cycle Combustion Turbine Unit No. 11
018	Simple Cycle Combustion Turbine Unit No. 12
019	Simple Cycle Combustion Turbine Unit No. 13
020	Simple Cycle Combustion Turbine Unit No. 14
021	Fire Pump (Diesel) – 235 HP

PROPOSED PROJECT

This project aligns several of the testing and recordkeeping requirements for turbines 7 through 11 and 12 through 14. A handful of requirements for CEMS data exclusion are modified slightly. A limit on the sulfur content of the fuel for turbines 1 through 6 is also imposed, at the request of the applicant.

This project will modify permit requirements for all 14 combustion turbine emission units (EU Nos. 001-011 and 018-020); however, this project does not include any physical construction or modifications.

FACILITY REGULATORY CLASSIFICATION

- The facility is a major source of hazardous air pollutants (HAP).
- The facility operates 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 62-213, 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

1. Permitting Authority: The permitting authority for this project is the Office of Permitting and Compliance in the Division of Air Resource Management of the Department of Environmental Protection (Department). The Office of Permitting and Compliance mailing address 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 Department's Central District Office at 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803. The Central District Office's email address is DEP_CD@dep.state.fl.us.

3. Appendices: The following Appendices are attached as a part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); Appendix C (Common Conditions); Appendix D (Common Testing Requirements); Appendix NSPS Subpart A (NSPS General Provisions); and Appendix NSPS Subpart GG (Standards of Performance for Stationary Gas Turbines).

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. Construction and Expiration. The expiration date shown on the first page of this permit provides time to complete the physical construction activities authorized by this permit, complete any necessary compliance testing, and obtain an operation permit. Notwithstanding this expiration date, all specific emissions limitations and operating requirements established by this permit shall remain in effect until the facility or emissions unit is permanently shut down. For good cause, the permittee may request that a permit be extended. Pursuant to Rule 62-4.080(3), F.A.C., such a request shall be submitted to the Permitting Authority in writing before the permit expires. [Rules 62-4.070(3) & (4), 62-4.080 & 62-210.300(1), F.A.C.]

A. EU Nos. 001 – 006: Simple-Cycle Combustion Turbine Unit Nos. 1 – 6

This section of the permit addresses the following emissions units. This section supplements all existing permits for these units.

EU No.	Emission Unit Description
001	Simple Cycle Combustion Turbine Unit No. 1
002	Simple Cycle Combustion Turbine Unit No. 2
003	Simple Cycle Combustion Turbine Unit No. 3
004	Simple Cycle Combustion Turbine Unit No. 4
005	Simple Cycle Combustion Turbine Unit No. 5
006	Simple Cycle Combustion Turbine Unit No. 6

PERFORMANCE RESTRICTIONS

1. Authorized Fuel: Only No. 2 fuel oil with a sulfur content of 0.5 percent or less by weight may be fired in these turbines. [Application No. 0970014-017-AC and Rule 62-4.160(2), F.A.C.]

MONITORING OF OPERATIONS

2. Fuel Sulfur Monitoring. The permittee shall demonstrate compliance with the liquid fuel sulfur limit by means of a fuel analysis provided by the vendor or the permittee upon each fuel delivery. [Application No. 0970014-017-AC and Rule 62-4.160(2), F.A.C.]

3. Fuel Sulfur Content. The fuel sulfur content, percent by weight, provided by the vendor or permittee for each delivery of liquid fuels shall be evaluated using either ASTM D1552-90, ASTM D2622-94, ASTM D4294-90(95), or both ASTM D4057-88 and ASTM D129-91(95), or the respective successor ASTM method(s). [Rule 62-297.440, F.A.C.]

B. EU Nos. 007 – 011: Simple-Cycle Combustion Turbine Unit Nos. 7 – 11

This subsection supersedes Permit No. 0970014-002-AC/PSD-FL-180H, which in turn superseded Permit Nos. PSD-FL-180 through 180G.

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
007	Simple Cycle Combustion Turbine Unit No. 7
008	Simple Cycle Combustion Turbine Unit No. 8
009	Simple Cycle Combustion Turbine Unit No. 9
010	Simple Cycle Combustion Turbine Unit No. 10
011	Simple Cycle Combustion Turbine Unit No. 11

CT Unit Nos. 7 - 10

The combustion turbine (CT) Unit Nos. 7 - 10 are fired by natural gas or new No. 2 fuel. The CT Unit Nos. 7 - 10 were manufactured by General Electric (Model PG7111EA). Each CT has an approximate maximum heat input of 1,150 MMBtu/hour (varying with ambient conditions) based on No. 2 fuel oil, and each turbine has a power generator rated at 96.3 MW (megawatts) of electricity. Inlet foggers are installed on the CT Unit Nos. 7 - 10. Air pollutant emissions from each of the CT Unit Nos. 7 - 10 are controlled by water injection when firing new No. 2 fuel oil, and each turbine exhausts through a separate stack.

The CT Unit Nos. 7 - 10 began commercial service on August 19, 1993; July 13, 1993; September 2, 1993; and, July 19, 1993; respectively.

The individual stack parameters for CT Unit Nos. 7 - 10 are identical: height, 50 feet; diameter, 13.75 feet; exit temperature, 1,043 degrees F; and, actual stack gas flow rate, 1,551,317 acfm.

CT Unit No. 11

The combustion turbine (CT) Unit No. 11 is fired by natural gas or new No. 2 fuel oil. The CT Unit No. 11 was manufactured by Siemens (Model V84.3). The CT Unit No. 11 has a maximum heat input of 2,032 MMBtu/hour based on new No. 2 fuel oil and the turbine has a power generator rated at 171 MW of electricity. Air pollutant emissions from the CT Unit No. 11 are controlled by water injection when firing new No. 2 fuel oil.

The CT Unit No. 11 began commercial service on January 1, 1997.

The stack parameters for CT Unit No. 11 are: height, 75 feet; diameter, 19 feet; exit temperature, 1,043 degrees F; and, actual stack gas flow rate, 2,370,627 acfm.

{Permitting notes: The CT Unit Nos. 7 - 10 & 011 are regulated under Acid Rain, Phase II; 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines; 40 CFR 63, Subpart YYYY, National Emissions Standards for Hazardous Air Pollutants for Stationary Combustion Turbines; Rule 62-212.400(5), F.A.C., Prevention of Significant Deterioration (PSD) [PSD-FL-180I]; and, Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT) Determination dated August 17, 1992. These emissions units are exempt from Compliance Assurance Monitoring (CAM) due to the use of NOx CEMS for continuous compliance.}

APPLICABLE REGULATIONS

1. NSPS Requirements: These units shall comply with the applicable New Source Performance Standards (NSPS) in 40 CFR 60, including: Subpart A (General Provisions), and Subpart GG (Standards of Performance for Stationary Gas Turbines). See Appendices NSPS Subpart A and GG of this permit. The Subpart GG requirement to correct test data to ISO conditions applies, but such correction is not required to demonstrate compliance with the non-NSPS permit standard(s). Some separate reporting and monitoring may be required

by the individual subparts. [Rules 62-204.800(8)(b) and (d), F.A.C.; and NSPS 40 CFR 60, Subparts A and GG]

2. NESHAP Requirements: These units shall comply with the applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR 63, including: Subpart A (General Provisions), and Subpart YYYY (NESHAP for Stationary Combustion Turbines). Combustion turbines for which construction commenced before January 14, 2003, have no requirements under this subpart. [Rules 62-204.800(11)(b) and (d), F.A.C.; and NESHAP 40 CFR 63, Subparts A and YYYY]

EQUIPMENT AND PERFORMANCE RESTRICTIONS

3. Permitted Capacity: The GE (EU Nos. 007 through 010) and Siemens (EU No. 011) combustion turbines have generator nameplate ratings of 96.3 and 171 MWs, respectively. The heat input limitations for these turbines are given in the following table. The basis for the heat input limitations is the lower heating value (LHV).

E.U. ID No.	007 - 010 (GE PG7111EA CTs)		011 (Siemens V84.3 CT)	
Temperature, °F	Natural Gas, MMBtu/hour/unit	Fuel Oil, MMBtu/hour/unit	Natural Gas, MMBtu/hour	Fuel Oil, MMBtu/hour
20	1,159	1,144	1,609	2,032
59	1,048	per heat input vs. ambient temperature curve	1,477	1,886
90	955		1,355	1,708

Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, alternate methods of operation, and evaporative cooling. The permittee shall provide performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities upon request. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file. [Rules 62-4.160(2) and 62-210.200 (Definitions - Potential to Emit (PTE), F.A.C]

4. Simple Cycle Operation Only: The combustion turbines shall operate only in simple cycle mode. This requirement is based on the permittee's request, which formed the basis of the NOx BACT determination and resulted in the emission standards specified in this permit. Specifically, the NOx BACT determination eliminated several control alternatives based on technical considerations and costs due to the elevated temperatures of the exhaust gas. Any request to convert these units to combined cycle operation by installing a new heat recovery steam generator or connecting to an existing heat recovery steam generator shall require the permittee to perform a new, current NOx BACT analysis and the approval of the Department through a permit modification. The results of this analysis may validate the initial BACT determination or result in the submittal of a full PSD permit application, new control equipment, and new emissions standards. [Rule 62-212.400 (BACT), F.A.C.; Application No. 0970014-017-AC; BACT Determination dated August 17, 1992]

5. Methods of Operation - Fuels & Inlet Foggers:

   a. *Fuels*. Only natural gas or No. 2 fuel oil having a maximum sulfur content of 1 grain per 100 dscf and 0.16% or less, by weight, respectively, may be fired in these combustion turbines.

   b. *Inlet Foggers.* The inlet foggers installed at the compressor inlet to each of the four simple cycle combustion turbines (CT Unit Nos. 7 - 10) may operate up to 7,000 hours per year in aggregate (average 1,750 hours per unit per year).

   [Rules 62-4.160(2), 62-210.200 (PTE), and 62-212.400 (BACT), F.A.C.]

6. Hours of Operation: The maximum cumulative hours of operation for any CT combination is 16,950 hours/calendar year (based on an average 3,390 hours/year/CT, an average capacity factor of 38.7%, 59 °F, and at peak load). [Rules 62-4.160(2) and 62-210.200 (PTE), F.A.C.]

AIR POLLUTION CONTROL EQUIPMENT

7. Nitrogen Oxides Control: Nitrogen oxides from the combustion turbines shall be controlled by water injection when firing gas or No. 2 fuel oil. [Rules 62-4.070(1) & (3), and 62-210.650, F.A.C.]

8. Automated Control System: In accordance with the manufacturer's recommendations, the permittee shall calibrate, tune, operate, and maintain the gas turbine control system for each combustion turbine. Each system shall be operated to monitor and control the gas turbine combustion process and operating parameters. [Rules 62-4.070(1) and (3), F.A.C.; Application No. 0970014-017-AC]

9. Combustion Controls: The permittee shall employ good operating practices in accordance with the manufacturer's recommended operating procedures to control CO, NOx, and VOC emissions. [Rules 62-4.070(1)&(3) F.A.C.; Application No. 0970014-017-AC]

10. Operating Procedures: All operators and supervisors shall be properly trained to operate and maintain the combustion turbines and pollution control devices in accordance with the guidelines and procedures established by each equipment manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Rules 62-4.070(1)&(3) F.A.C.; Application No. 0970014-017-AC]

EMISSION LIMITATIONS AND STANDARDS

The mass emission limits (lb/hr) are based on 100% base load, 59 °F and 60% relative humidity.

{Permitting note: These limits were originally established in Permit Nos. PSD-FL-180A through 180H. This permit removes some limits, in units of tons per year, that are duplicative of limits in units of pounds per hour.}

11. Nitrogen Oxides (NO_X): Compliance with the following emission limits for NO_X shall be demonstrated by the continuous emissions monitoring systems (CEMS) for NO_X, on a 24-hour block average.
    a. *Natural Gas Operation*:
        i. *EU Nos. 007 – 010:* NO_X emissions may exceed neither 25 parts per million by volume, dry, corrected to 15% O_2 (ppmvd @ 15% O_2), nor 107 lb/hr.
        ii. *EU No. 011:* NO_X emissions may exceed neither 25 ppmvd @ 15% O_2, nor 149 lb/hr.
    b. *Fuel Oil Operation:*
        i. *EU Nos. 007 – 010:* NO_X emissions may exceed neither 42 ppmvd @ 15% O_2, nor 182 lb/hr.
        ii. *EU No. 011:* NO_X emissions may exceed neither 42 ppmvd @ 15% O_2, nor 334 lb/hr.

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

12. Sulfur Dioxide (SO_2) and Sulfuric Acid Mist (SAM): Emissions of SO_2 and SAM shall be limited by firing only natural gas with a maximum sulfur content of 1 grain per 100 dscf or No. 2 fuel oil with a maximum sulfur content of 0.16% by weight. [Rule 62-212.400 (BACT), F.A.C.]

    {Permitting note: Compliance with these sulfur content limits assures compliance with the NSPS 40 CFR 60 Subpart GG limit.}

13. Particulate Matter (PM):
    a. *No Tests Required*: Compliance with the Visible Emission standard is used as a proxy for compliance with the PM limits. No PM testing is required unless a VE test indicates an exceedance of the VE standard, in accordance with **Specific Condition 19**.

b. *Natural Gas Operation*: PM emissions from each individual CT while burning natural gas shall not exceed 7.50 lb/hr.

c. *Fuel Oil Operation*: PM emissions from each individual CT while burning fuel oil shall not exceed any of the following limits:

i. *EU Nos. 007 – 010*: 0.01 lb/MMBtu, nor 15 lb/hr

ii. *EU No. 011*: 0.01 lb/MMBtu, nor 17 lb/hr

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

14. Volatile Organic Compounds (VOC):

a. *No Tests Required*: Compliance with the carbon monoxide (CO) limits is used as a proxy for compliance with the VOC limits. No VOC testing is required unless a CO test indicates an exceedance of the CO standard, in accordance with **Specific Condition 19**.

b. *Natural Gas Operation*: Emissions of VOC from each CT shall not exceed the following:

i. *EU Nos. 007 – 010*: 3.0 lb/hr

ii. *EU No. 011*: 5.3 lb/hr

c. *Fuel Oil Operation*: Emissions of VOC from each CT shall not exceed the following:

i. *EU Nos. 007 – 010*: 5.0 lb/hr

ii. *EU No. 011*: 9.0 lb/hr

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

15. CO:

a. *Natural Gas Operation*: Emissions of CO from each CT shall not exceed the following limits:

i. *EU Nos. 007 – 010*: 21.3 lb/hr

ii. *EU No. 011*: 30.9 lb/hr

b. *Fuel Oil Operation*: Emissions of CO from each CT shall not exceed the following limits:

i. *EU Nos. 007 – 010*: 25 ppmvd @ 15% O_2, nor 54.0 lb/hr

ii. *EU No. 011*: 25 ppmvd @ 15% O_2, nor 79.0 lb/hr

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

16. Visible Emissions (VE): VE from each CT shall not exceed 10 percent opacity. [Rule 62-212.400 (BACT), F.A.C.]

TESTING REQUIREMENTS

17. Test Requirements: Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(9), F.A.C.]

18. Test Methods: If required, tests shall be performed in accordance with the following reference methods:

Method(s)	Description of Method(s) and Comment(s)
EPA Methods 1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
EPA Methods 5, 17, 201A or 202	Methods for Determining PM Emissions
Appendix D, 40 CFR 75	Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units
EPA Method 7, 7A, 7C, 7D or 7E	Determination of NOx Emissions
EPA Method 9	Visual Determination of the Opacity of Emissions (VE)

Method(s)	Description of Method(s) and Comment(s)
EPA Method 10	Determination of CO Emissions
EPA Method 20	Determination of NOx, SO_2 and Diluent Emissions from Stationary Gas Turbines
EPA Method 18, 25 and/or 25A	Measurement of Gaseous Organic Compound Emissions (VOC)

The above methods are described in Chapter 62-297, F.A.C. and/or 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. [Chapter 62-297, F.A.C.]

19. Annual Compliance Tests Required: During each calendar year (January 1 to December 31), each CT shall be tested to demonstrate compliance with the emission limitations for CO and VE for natural gas operation. An annual test for CO and VE shall also be performed while firing fuel oil, on each CT that has fired fuel oil for more than 400 hours during the calendar year. PM testing is only required if the VE test indicates an exceedance of the standard. VOC testing is only required if the CO test indicates an exceedance of the standard. [Rule 62-297.310(8), F.A.C.]

20. Operating Rate During Testing: Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum heat input rate allowed by the permit, corrected for the average compressor inlet temperature during the test (with 100 percent represented by a curve depicting heat input vs. compressor inlet temperature). If it is impracticable to test at permitted capacity, the source may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the entire heat input vs. compressor inlet temperature curve downward by an increment equal to the difference between the maximum permitted heat input (corrected for compressor inlet temperature) and 110 percent of the value reached during the test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 60 days for the purposes of additional compliance testing to regain the permitted capacity. The turbine's heat input vs. inlet compressor temperature curve shall be included with the compliance test results. [Rule 62-297.310(3), F.A.C.]

BACT APPLICABILITY

Rule 62-210.700 (Excess Emissions), F.A.C., cannot vary any requirement of a NSPS or NESHAP provision.

{Permitting note: This permit makes minor adjustments to the periods of applicability and data exclusion for the NO_X BACT limits. These are small changes to align these requirements with the requirements for CT Nos. 12 through 14.}

21. Excess Emissions: 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. All such preventable emissions shall be included in any compliance determinations based on CEMS data. [Rule 62-210.700(4), F.A.C.]

22. Alternate Standards and NOx CEMS Data Exclusion: The following permit conditions establish alternate standards or allow the exclusion of monitoring data for specifically defined periods of startup, shutdown, and documented malfunction of a gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of emissions during such episodes.
    a. *Opacity*: During startup and shutdown, visible emissions excluding water vapor shall not exceed 20% opacity for up to 120 minutes in any 24-hour calendar day period per CT. Stack tests to demonstrate compliance with this limit are not required.
    b. *NOx CEMS Data Exclusion*: For the following identified operational periods, limited amounts of NOx

emissions data may be excluded from the 24-hour block compliance averages in accordance with the corresponding requirements.

i. *Startup, Shutdown, and Malfunction*. No more than 60 minutes of data due to startup shall be excluded per cycle per CT. No more than 60 minutes of data due to shutdown shall be excluded per cycle per CT. No more than 120 minutes of data shall be excluded in a 24-hour calendar day period due to malfunction per CT. No more than 240 minutes of data shall be excluded in a 24-hour calendar day period per CT due to all startups, shutdowns, and malfunctions. Note: A fuel-switch is not considered "startup."

ii. *Tuning*. If the permittee provides advance notice prior to a major tuning session performed by the manufacturer's representative, hourly NOx emissions rate values during tuning may be excluded from the 24-hour block compliance averages. Data excluded due to tuning shall not count towards the limit on total excluded data in a 24-hour period.

iii. *Full-Speed No-Load Testing*. As a periodic maintenance practice, the permittee may perform full-speed no-load tests with the combustion turbine generator in accordance with the manufacturer's recommendations (or industry standards). An example of work that may require full-speed no-load testing includes, but is not limited to, testing and commissioning of synchronizing instrumentation, transformers and generation equipment to assure safe and reliable connection to the bulk electric system. Hourly NOx emissions rate values during full-speed no-load testing may be excluded from the 24-hour block compliance averages. Data excluded due to full-speed no-load testing shall not count towards the limit on total excluded data in a 24-hour period.

[Rules 62-210.700(5), 62-4.130, and Rule 62-212.400 (BACT), F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

23. NOx CEMS Requirements: For each gas turbine, the permittee shall install, calibrate, maintain, and operate continuous emissions monitors (CEMS) to measure and record emissions of nitrogen oxides (NOx) and oxygen (O_2) in a manner sufficient to demonstrate compliance with the standards of this permit. A monitor for carbon dioxide (CO_2) may be used in place of the oxygen monitor, but the system shall be capable of correcting the emissions to 15% oxygen. Each monitor shall be installed in a location that will provide emissions measurements representative of actual stack emissions. Each CEMS shall comply with the corresponding performance specifications that identify location, installation, design, performance, and reporting requirements.

    a. *NOx Monitors*: Each NOx monitor shall be certified, operated, and maintained in accordance with the requirements of 40 CFR 75. Record keeping and reporting shall be conducted pursuant to Subparts F and G in 40 CFR 75. The RATA tests required for the NOx monitor shall be performed using EPA Method 7E in Appendix A of 40 CFR 60.

    b. *Diluent Monitors*: 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 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 62-4.130 and 62-4.160(8), F.A.C.; 40 CFR 60.7]

24. CEMS Data requirements for BACT Standards:

    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. The CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an

algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd of NOx corrected to 15% oxygen. The CEMS shall be used to demonstrate compliance with the CEMS emission standards for NOx as specified in this section. For purposes of determining compliance with the CEMS emissions standards of this section, missing (or excluded) data shall not be substituted. Upon request by the Department, the NOx emission rate shall be corrected to ISO (International Standards Organization (refers to those conditions at 288 Kelvin, 60% relative humidity and 101.3 kilopascals pressure)) conditions to demonstrate compliance with the applicable Subpart GG standards of 40 CFR 60.332.

b. *Valid Hour:* Hourly average values shall begin at the top of each hour. During each full operating hour, each monitor must complete a minimum of cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour to validate the hour. For partial unit operating hours in which quality assurance and maintenance activities are performed on the CEMS, a minimum of two valid data points, separated by a minimum of 15 minutes (one data point in each of two separate quadrants), are required to validate the hour. All valid measurements or data points collected during an hour shall be used to calculate the hourly average value.

c. *24-Hour Block Averages:* Compliance with the 24-hour block NOx emissions standards shall be based on data collected by each required CEMS. The 24-hour block shall start at midnight of each operating day and consist of 24 consecutive one-hour blocks. If a unit operates less than 24 hours during the day, or has less than 24 valid one-hour emission averages, the 24-hour block average shall be the average of the available valid 1-hour emission averages collected during actual operation. If monitoring data is authorized for exclusion (due to startup, shutdown, malfunction, tuning, full speed no load testing), the 24-hour block average shall be the average of the remaining valid one-hour emission averages collected during actual operation. In cases of reduced operation or data exclusion, the compliance average will be based on fewer than 24 one-hour emission averages. Upon completion of each 24-hour block, the permittee shall determine separate compliance averages for gas firing and oil firing. A 1-hour emissions average that includes any amount of oil firing shall only be included in the compliance average for oil firing.

d. *Data Exclusion:* Except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, each CEMS shall record emissions data at all times including episodes of startup, shutdown, tuning, full speed no load testing, and malfunction. Emissions data recorded during periods of startup, shutdown, tuning, full speed no load testing or malfunction may only be excluded from the compliance averages in accordance with the requirements specified in this permit. All periods of data excluded shall be consecutive for each episode and only data obtained during the described episodes (startup, shutdown, malfunction, tuning, full speed no load testing) may be used for the appropriate exclusion periods. To the extent practicable, the permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions. Data recorded during startup, shutdown or malfunction shall not be excluded if the episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during startup, shutdown and malfunction. Excluded emissions data shall be summarized in the required excess emissions report.

e. *Reporting*: If a CEMS reports NOx emissions in excess of a standard, the permittee shall notify the Compliance Authority within one working day with a preliminary report 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.

f. *Monitor Availability*: Monitor availability shall not be less than 95% in any calendar quarter in which the

unit operated for a minimum of 168 hours. In the event 95% availability is not achieved in a calendar quarter with at least 168 operating hours, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.

[Rules 62-4.130 and 62-4.160(8), F.A.C.; 40 CFR 60.7]

25. Continuous Compliance with the NOx Emission Limits: Continuous compliance with the NOx emission limits shall be demonstrated with the CEMS based on the applicable averaging time of 24-hr block average. [Rule 62-212.400 (BACT), F.A.C.; 40 CFR 64.2(b)(vi)]

26. CEMS in lieu of Water-to-Fuel Ratio: The NOx CEMS may be used in lieu of the water/fuel monitoring system for reporting excess emissions in accordance with 40 CFR 60.334(b), Subpart GG. The calibration of the water/fuel monitoring device required in Subpart GG be replaced by the 40 CFR 75 certification tests of the NOx CEMS. [40 CFR 60.334(b)(1) and 60.334(b)(3)(ii)]

RECORDKEEPING AND REPORTING REQUIREMENTS

27. Excess Emissions Reports:
    a. *Malfunction Notification:* If emissions in excess of a standard (subject to the specified averaging period) occur due to malfunction, 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 Department may request a written summary report of the incident.
    b. *BACT Quarterly Permit Limits Excess Emissions 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 following the NSPS format in 40 CFR 60.7(c), Subpart A. Periods of startup, shutdown 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. The report shall also summarize all periods during which the fuel sulfur content exceeded the permitted limit. A summary of data excluded from BACT compliance calculations should also be provided.
    c. *NSPS Semi-Annual Excess Emissions Reports*: Within 30 days following each calendar semi-annual period, the permittee shall submit a report on any periods of excess emissions of the applicable NSPS that occurred during the previous semi-annual period. In addition, the report shall summarize the CEMS systems monitor availability for the previous semi-annual period.

    [Rules 62-4.130, 62-210.700(5), and 62-212.400 (BACT), F.A.C.; 40 CFR 60.7(c)]

28. Fuel Records:
    a. *Natural Gas*: The permittee shall demonstrate compliance with the SO_2 standards of this permit and in 40 CFR 60.333 by complying with the requirements in 40 CFR 75 Appendix D.
    b. *Distillate Oil*: For all bulk shipments of distillate oil received at this facility, the permittee shall obtain an analysis identifying the sulfur content. An analysis provided by the fuel vendor is acceptable. Methods for determining the sulfur content of the distillate oil shall be ASTM D129-91, D2622-94, or D4294-90 or equivalent methods. Records shall specify the test method used and shall comply with the requirements of 40 CFR 60.335(d).

    [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

29. Monthly Operations Summary: By the fifteenth calendar day of each month, the owner or operator shall record the following information in a written or electronic log summarizing the previous month of operation

and the previous 12 months of operation: hours of operation of inlet foggers; hours of gas firing; quantity of gas fired; hours of oil firing; and, quantity of oil fired. The information shall be recorded for each CT and for the group of five CTs. Information may be recorded and stored as an electronic file, but must be available for inspection and/or printing at the request of the Compliance Authority. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

C. EU Nos. 018 – 020: Simple-Cycle Combustion Turbine Unit Nos. 12 – 14

This subsection supersedes Permit No. 0970014-006-AC/PSD-FL-268A (which in turn superseded Permit No. 0970014-003-AC/PSD-FL-268) and Permit No. 0970014-013-AC/PSD-FL-268B.

This section of the permit addresses the following emissions units.

EU No.	Emission Unit Description
018	Simple Cycle Combustion Turbine Unit No. 12
019	Simple Cycle Combustion Turbine Unit No. 13
020	Simple Cycle Combustion Turbine Unit No. 14

These emissions units, CT Unit Nos. 12 - 14, are dual-fuel, nominal 91 megawatt (MW) General Electric Model PG7121(7EA) combustion turbine (CT)-electrical generators with evaporative inlet coolers. The combustion turbine units can operate in simple cycle mode and intermittent duty mode. The CT units are fueled primarily with pipeline natural gas, with distillate (No. 2) fuel oil used as a back-up fuel. The CT units were designed and constructed with dry low NOx (DLN) burner technology and water injection capability for the control of nitrogen oxides (NOx) emissions. A continuous emissions monitoring system (CEMS) monitors NOx emissions from the combustion turbines. The advanced burner design reduces incomplete combustion and minimizes carbon monoxide (CO), particulate matter (PM/PM_{10}), and volatile organic compound (VOC) emissions. The use of inherently clean fuels and good operating practices also reduces air pollutant emissions.

E.U. ID Nos. 018, 019 & 020 began operation on March 1, 2001.

The stack parameters for E.U. ID Nos. 018, 019 & 020 are identical: height, 56 feet; diameter, 16.1 feet; exit temperature, 993 degrees F; and, actual stack gas flow rate, 1,436,310 acfm.

{Permitting note(s): These emissions units are regulated under Acid Rain, Phase II; NSPS - 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, adopted and incorporated by reference in Rule 62-204.800(8)(b), F.A.C.; 40 CFR 63, Subpart YYYY, National Emissions Standards for Hazardous Air Pollutants for Stationary Combustion Turbines; Rule 62-212.400, F.A.C., Prevention of Significant Deterioration (PSD) [PSD-FL-268, as amended]; and, Rule 62-212.400(6), F.A.C., Best Available Control Technology (BACT) Determination dated December 9, 1999. These emissions units are exempt from Compliance Assurance Monitoring (CAM) due to the use of NOx CEMS for continuous compliance.}

APPLICABLE REGULATIONS

1. NSPS Requirements: These units shall comply with the applicable New Source Performance Standards (NSPS) in 40 CFR 60, including: Subpart A (General Provisions), and Subpart GG (Standards of Performance for Stationary Gas Turbines). See Appendices NSPS Subpart A and GG of this permit. The Subpart GG requirement to correct test data to ISO conditions applies, but such correction is not required to demonstrate compliance with the non-NSPS permit standard(s). Some separate reporting and monitoring may be required by the individual subparts. [Rules 62-204.800(8)(b) and (d), F.A.C.; and NSPS 40 CFR 60, Subparts A and GG]

2. NESHAP Requirements: These units shall comply with the applicable National Emissions Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR 63, including: Subpart A (General Provisions), and Subpart YYYY (NESHAP for Stationary Combustion Turbines). See Appendices NESHAP Subpart A and YYYY of this permit. Combustion turbines for which construction commenced before January 14, 2003, have no requirements under this subpart. [Rules 62-204.800(11)(b) and (d), F.A.C.; and NESHAP 40 CFR 63, Subparts A and YYYY]

EQUIPMENT AND PERFORMANCE RESTRICTIONS

3. Permitted Capacity: Each combustion turbine (CT Unit Nos. 12 - 14) shall operate only in simple-cycle mode and generate a nominal 91 MW of electrical power. Operation of each unit shall not exceed 905 million Btu

per hour (MMBtu/hr) of heat input from firing natural gas or 978 MMBtu/hr of heat input from firing low sulfur distillate oil. Excluding startup and shutdown, operation below 50% base load is prohibited. The maximum heat inputs are based on the lower heating value (LHV) of each fuel, an inlet air temperature of 59 °F, a relative humidity of 60%, an ambient air pressure of 14.7 psi, and 100% of base load. Therefore, heat input rates will vary depending upon ambient conditions and the combustion turbine characteristics. Compliance shall be determined by data compiled from the Gas Turbine Control System adjusted for these parameters. Performance curves, corrected for site conditions or equations for correction to other ambient conditions, shall be resubmitted to the Permitting and Compliance Authorities at any time that they are changed as the result of new testing. [Rules 62-4.160(2) and 62-210.200 (PTE), F.A.C.]

4. Simple Cycle Operation Only: The combustion turbines shall operate only in simple cycle mode. This requirement is based on the permittee's request, which formed the basis of the NOx BACT determination and resulted in the emission standards specified in this permit. Specifically, the NOx BACT determination eliminated several control alternatives based on technical considerations and costs due to the elevated temperatures of the exhaust gas. Any request to convert these units to combined cycle operation by installing a new heat recovery steam generator or connecting to an existing heat recovery steam generator shall require the permittee to perform a new, current NOx BACT analysis and the approval of the Department through a permit modification. The results of this analysis may validate the initial BACT determination or result in the submittal of a full PSD permit application, new control equipment, and new emissions standards. [Rule 62-212.400 (BACT), F.A.C.; BACT Determination dated December 9, 1999]

5. Permitted Fuels: Each combustion turbine shall be fired by pipeline natural gas containing no more than 1 grain of sulfur per 100 dry standard cubic feet of gas. As a backup fuel, each combustion turbine may be fired with No. 2 distillate oil (or a superior grade) containing no more than 0.05% sulfur by weight. Each unit shall be capable of firing natural gas. Compliance with the limits on fuel sulfur content shall be demonstrated by the record keeping requirements specified in this permit.

   {Permitting note: These limitations are much more stringent than the NSPS sulfur dioxide limitation and assure compliance with 40 CFR 60.333 and 60.334.}

   [Rules 62-4.160(2), 62-210.200 (PTE), and 62-212.400 (BACT), F.A.C.]

6. Hours of Operation: The following limits apply to this group of three combustion turbines:
   a. *Operating Hours*: The total turbine operating hours shall not exceed 10,170 hours during any consecutive 12 months.
   b. *Oil Firing:* Each gas turbine is limited to no more than 1,000 turbine operating hours of oil firing during any consecutive 12 months. In addition, the group of three gas turbines is limited to no more than 2,500 turbine operating hours of oil firing during any consecutive 12 months.

   Total turbine operating hours are the sum of operating hours when firing gas and operating hours when firing oil. The permittee shall calibrate, operate and maintain meters to measure and record the amount of each fuel fired and hours of operation for each combustion turbine.

   [Rules 62-210.200 (PTE) and 62-212.400 (BACT), F.A.C.]

AIR POLLUTION CONTROL EQUIPMENT

7. Nitrogen Oxides Control: Nitrogen oxides from the combustion turbines shall be controlled by water injection when firing No. 2 fuel oil. [Rules 62-4.070(1) & (3), and 62-210.650, F.A.C.]

8. Automated Control System: In accordance with the manufacturer's recommendations, the permittee shall calibrate, tune, operate, and maintain the gas turbine control system for each combustion turbine. Each system shall be operated to monitor and control the gas turbine combustion process and operating parameters. [Rules 62-4.070(1) and (3), F.A.C.; Application No. 0970014-017-AC]

9. Combustion Controls: The permittee shall employ good operating practices in accordance with the manufacturer's recommended operating procedures to control CO, NOx, and VOC emissions. [Rules 62-4.070(1)&(3) F.A.C.; Application No. 0970014-017-AC]

10. Operating Procedures: All operators and supervisors shall be properly trained to operate and maintain the combustion turbines and pollution control devices in accordance with the guidelines and procedures established by each equipment manufacturer. The training shall include good operating practices as well as methods of minimizing excess emissions. [Rules 62-4.070(1)&(3) F.A.C.; Application No. 0970014-017-AC]

11. Dry Low NOx (DLN) Combustion Technology: To control NOx emissions when firing natural gas on CT Units Nos. 12-14, the permittee shall tune, operate and maintain a DLN combustion system for each combustion turbine in accordance with the manufacturer's recommendations. [Rules 62-4.070(1) and (3), 62-212.400 (BACT), F.A.C.; Application No. 0970014-017-AC]

EMISSION LIMITATIONS AND STANDARDS

The mass emission limits (lb/hr) are based on 100% base load, 59 °F and 60% relative humidity.

12. Nitrogen Oxides (NO_X):
    a. *Natural Gas Operation*: NO_X emissions shall not exceed 33.0 lbs/hr nor 9.0 ppmvd @ 15% O_2 based on an annual 3-hour compliance test average. In addition, NO_X emissions shall not exceed 10.0 ppmvd @ 15% O_2 based on a 24-hour block average of all valid data collected from the NO_X continuous emission monitoring system (CEMS) during actual operation. NO_X emissions are defined as emissions of oxides of nitrogen measured as NO_2. Compliance with the 24-hour block averages shall be demonstrated by collecting and reporting data in accordance with the conditions for the NO_X CEMS.
    b. *Fuel Oil Operation:* NO_X emissions shall not exceed 169.0 lbs/hr nor 42.0 ppmvd @ 15% O_2 based on an annual 3-hour compliance test average. In addition, NO_X emissions shall not exceed 42.0 ppmvd @ 15% O_2 based on a 24-hour block average of all valid data collected from the NO_X CEMS during actual operation. The permittee shall set up the automated control system for water injection to reduce NOx emissions below 42.0 ppmvd corrected to 15% oxygen. NO_X emissions are defined as emissions of oxides of nitrogen measured as NO_2. Compliance with the 24-hour block averages shall be demonstrated by collecting and reporting data in accordance with the conditions for the NO_X CEMS.

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

13. Sulfur Dioxide (SO_2) and Sulfuric Acid Mist (SAM): Emissions of SO_2 and SAM shall be limited by firing only pipeline natural gas with a maximum sulfur content of 1 grain per 100 dscf or No. 2 fuel oil with a maximum sulfur content of 0.05% by weight. [Rule 62-212.400 (BACT), F.A.C.]

    {Permitting note: Compliance with these sulfur content limits assures compliance with the NSPS 40 CFR 60 Subpart GG limit.}

14. Particulate Matter (PM/PM_{10}): Emissions of PM/PM_{10} shall be limited by the good combustion techniques and the fuel sulfur limitations specified in this permit. Compliance with the Visible Emission standard is used as a proxy for compliance with the PM limits. [Rule 62-212.400 (BACT), F.A.C.]

15. Volatile Organic Compounds (VOC):
    a. *No Tests Required*: Compliance with the carbon monoxide (CO) limits are used as a proxy for compliance with the VOC limits. No VOC testing is required unless a CO test indicates an exceedance of the CO standard, in accordance with **Specific Condition 20**.
    b. *Natural Gas Operation*: Emissions of VOC from each CT may exceed neither 2.0 lb/hr nor 2.0 ppmvd @ 15% O_2. The VOC emissions shall be measured and reported as methane.

c. *Fuel Oil Operation*: Emissions of VOC from each CT may exceed neither 5.0 lb/hr nor 4.0 ppmvd @ 15% O_2. The VOC emissions shall be measured and reported as methane.

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

16. CO:

a. *Natural Gas Operation*: Emissions of CO from each CT may exceed neither 43.0 lb/hr nor 20.0 ppmvd @ 15% O_2.

b. *Fuel Oil Operation*: Emissions of VOC from each CT may exceed neither 44.0 lb/hr nor 20.0 ppmvd @ 15% O_2.

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

17. Visible Emissions (VE): VE from each CT shall not exceed 10 percent opacity. [Rule 62-212.400 (BACT), F.A.C.]

TESTING REQUIREMENTS

18. Test Requirements: Tests shall be conducted in accordance with the applicable requirements specified in Appendix D (Common Testing Requirements) of this permit. [Rule 62-297.310(9), F.A.C.]

19. Test Methods: If required, tests shall be performed in accordance with the following reference methods:

Method(s)	Description of Method(s) and Comment(s)
EPA Methods 1-4	Traverse Points, Velocity and Flow Rate, Gas Analysis, and Moisture Content
Appendix D, 40 CFR 75	Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units
EPA Method 7, 7A, 7C, 7D or 7E	Determination of NOx Emissions
EPA Method 9	Visual Determination of the Opacity of Emissions (VE)
EPA Method 10	Determination of CO Emissions
EPA Method 20	Determination of NOx, SO_2 and Diluent Emissions from Stationary Gas Turbines
EPA Method 18, 25 and/or 25A	Measurement of Gaseous Organic Compound Emissions (VOC)

The above methods are described in Chapter 62-297, F.A.C. and/or 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. [Chapter 62-297, F.A.C.]

20. Annual Compliance Tests Required: During each calendar year (January 1 to December 31), each CT shall be tested to demonstrate compliance with the emission limitations for CO, NO_X, and VE for natural gas operation. The NO_X RATA test data may be used to demonstrate compliance with the annual test requirement, provided the testing requirements (notification, procedures and reporting) of Chapter 62-297, F.A.C. are met. An annual test for CO, NO_X, and VE shall also be performed while firing fuel oil, on each CT that has fired fuel oil for more than 400 hours during the calendar year. For oil firing, compliance with the NO_X standards may be determined by the NO_X CEMS data collected during the required CO test. VOC testing is only required if the CO test indicates an exceedance of the standard. [Rule 62-297.310(8), F.A.C.]

21. Operating Rate During Testing: Testing of emissions shall be conducted with the combustion turbine operating at permitted capacity. Permitted capacity is defined as 90-100 percent of the maximum heat input rate allowed by the permit, corrected for the average compressor inlet temperature during the test (with 100 percent represented by a curve depicting heat input vs. compressor inlet temperature). If it is impracticable to

test at permitted capacity, the source may be tested at less than permitted capacity. In this case, subsequent operation is limited by adjusting the entire heat input vs. compressor inlet temperature curve downward by an increment equal to the difference between the maximum permitted heat input (corrected for compressor inlet temperature) and 110 percent of the value reached during the test until a new test is conducted. Once the unit is so limited, operation at higher capacities is allowed for no more than 60 days for the purposes of additional compliance testing to regain the permitted capacity. The turbine's heat input vs. inlet compressor temperature curve shall be included with the compliance test results. [Rule 62-297.310(3), F.A.C.]

BACT APPLICABILITY

Rule 62-210.700 (Excess Emissions), F.A.C., cannot vary any requirement of a NSPS or NESHAP provision.

{Permitting note: This permit makes minor adjustments to the periods of applicability and data exclusion for the NO_X BACT limits. These are small changes to align these requirements with the requirements for CT Nos. 7 through 11.}

22. Excess Emissions: 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. All such preventable emissions shall be included in any compliance determinations based on CEMS data. [Rule 62-210.700(4), F.A.C.]
23. Alternate Standards and NOx CEMS Data Exclusion: The following permit conditions establish alternate standards or allow the exclusion of monitoring data for specifically defined periods of startup, shutdown, and documented malfunction of a gas turbine. These conditions apply only if operators employ the best operational practices to minimize the amount and duration of emissions during such episodes.
    a. *Opacity*: During startup and shutdown, visible emissions excluding water vapor shall not exceed 20% opacity for up to 120 minutes in any 24-hour calendar day period per CT. Stack tests to demonstrate compliance with this limit are not required.
    b. *NO_X CEMS Data Exclusion*: For the following identified operational periods, limited amounts of NO_X emissions data may be excluded from the 24-hour block compliance averages in accordance with the corresponding requirements.
        i. *Startup, Shutdown, and Malfunction*. No more than 60 minutes of data due to startup shall be excluded per cycle per CT. No more than 60 minutes of data due to shutdown shall be excluded per cycle per CT. No more than 120 minutes of data shall be excluded in a 24-hour calendar day period due to malfunction per CT. No more than 240 minutes of data shall be excluded in a 24-hour calendar day period per CT due to all startups, shutdowns, and malfunctions. Note: A fuel-switch is not considered "startup."
        ii. *Tuning*. If the permittee provides advance notice prior to a major tuning session performed by the manufacturer's representative, hourly NO_X emissions rate values during tuning may be excluded from the 24-hour block compliance averages. Data excluded due to tuning shall not count towards the limit on total excluded data in a 24-hour period.
        iii. *Full-Speed No-Load Testing*. As a periodic maintenance practice, the permittee may perform full-speed no-load tests with the combustion turbine generator in accordance with the manufacturer's recommendations (or industry standards). An example of work that may require full-speed no-load testing includes, but is not limited to, testing and commissioning of synchronizing instrumentation, transformers and generation equipment to assure safe and reliable connection to the bulk electric system. Hourly NO_X emissions rate values during full-speed no-load testing may be excluded from the 24-hour block compliance averages. Data excluded due to full-speed no-load testing shall not count towards the limit on total excluded data in a 24-hour period.

    [Rules 62-210.700(5), 62-4.130, and 62-212.400 (BACT), F.A.C.]

CONTINUOUS MONITORING REQUIREMENTS

24. NOx CEMS Requirements: For each gas turbine, the permittee shall install, calibrate, maintain, and operate continuous emissions monitors (CEMS) to measure and record emissions of nitrogen oxides (NOx) and oxygen (O_2) in a manner sufficient to demonstrate compliance with the standards of this permit. A monitor for carbon dioxide (CO_2) may be used in place of the oxygen monitor, but the system shall be capable of correcting the emissions to 15% oxygen. Each monitor shall be installed in a location that will provide emissions measurements representative of actual stack emissions. Each CEMS shall comply with the corresponding performance specifications that identify location, installation, design, performance, and reporting requirements.
    a. *NOx Monitors*: Each NOx monitor shall be certified, operated, and maintained in accordance with the requirements of 40 CFR 75. Record keeping and reporting shall be conducted pursuant to Subparts F and G in 40 CFR 75. The RATA tests required for the NOx monitor shall be performed using EPA Method 7E in Appendix A of 40 CFR 60.
    b. *Diluent Monitors*: 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 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 62-4.130 and 62-4.160(8), F.A.C.; 40 CFR 60.7]

25. CEMS Data requirements for BACT Standards:
    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. The CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load for each allowable fuel, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd of NOx corrected to 15% oxygen. The CEMS shall be used to demonstrate compliance with the CEMS emission standards for NOx as specified in this section. For purposes of determining compliance with the CEMS emissions standards of this section, missing (or excluded) data shall not be substituted. Upon request by the Department, the NOx emission rate shall be corrected to ISO (International Standards Organization (refers to those conditions at 288 Kelvin, 60% relative humidity and 101.3 kilopascals pressure)) conditions to demonstrate compliance with the applicable Subpart GG standards of 40 CFR 60.332.
    b. *Valid Hour:* Hourly average values shall begin at the top of each hour. During each full operating hour, each monitor must complete a minimum of cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour to validate the hour. For partial unit operating hours in which quality assurance and maintenance activities are performed on the CEMS, a minimum of two valid data points, separated by a minimum of 15 minutes (one data point in each of two separate quadrants), are required to validate the hour. All valid measurements or data points collected during an hour shall be used to calculate the hourly average value.
    c. *24-Hour Block Averages:* Compliance with the 24-hour block NOx emissions standards shall be based on data collected by each required CEMS. The 24-hour block shall start at midnight of each operating day and consist of 24 consecutive one-hour blocks. If a unit operates less than 24 hours during the day, or has less than 24 valid one-hour emission averages, the 24-hour block average shall be the average of the

available valid 1-hour emission averages collected during actual operation. If monitoring data is authorized for exclusion (due to startup, shutdown, malfunction, tuning, full speed no load testing), the 24-hour block average shall be the average of the remaining valid one-hour emission averages collected during actual operation. In cases of reduced operation or data exclusion, the compliance average will be based on fewer than 24 one-hour emission averages. Upon completion of each 24-hour block, the permittee shall determine separate compliance averages for gas firing and oil firing. A 1-hour emissions average that includes any amount of oil firing shall only be included in the compliance average for oil firing.

d. *Data Exclusion:* Except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments, each CEMS shall record emissions data at all times including episodes of startup, shutdown, tuning, full speed no load testing, and malfunction. Emissions data recorded during periods of startup, shutdown, tuning, full speed no load testing or malfunction may only be excluded from the compliance averages in accordance with the requirements specified in this permit. All periods of data excluded shall be consecutive for each episode and only data obtained during the described episodes (startup, shutdown, malfunction, tuning, full speed no load testing) may be used for the appropriate exclusion periods. To the extent practicable, the permittee shall minimize the duration of data excluded for startup, shutdown and malfunctions. Data recorded during startup, shutdown or malfunction shall not be excluded if the episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during startup, shutdown and malfunction. Excluded emissions data shall be summarized in the required excess emissions report.

e. *Reporting*: If a CEMS reports NOx emissions in excess of a standard, the permittee shall notify the Compliance Authority within one working day with a preliminary report 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.

f. *Monitor Availability*: Monitor availability shall not be less than 95% in any calendar quarter in which the unit operated for a minimum of 168 hours. In the event 95% availability is not achieved in a calendar quarter with at least 168 operating hours, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.

[Rules 62-4.130 and 62-4.160(8), F.A.C.; 40 CFR 60.7]

30. Continuous Compliance with the NOx Emission Limits: Continuous compliance with the NOx emission limits shall be demonstrated with the CEMS based on the applicable averaging time of 24-hr block average. [Rule 62-212.400 (BACT), F.A.C.; 40 CFR 64.2(b)(vi)]

31. CEMS in lieu of Water-to-Fuel Ratio: The NOx CEMS may be used in lieu of the water/fuel monitoring system for reporting excess emissions in accordance with 40 CFR 60.334(b), Subpart GG. The calibration of the water/fuel monitoring device required in Subpart GG be replaced by the 40 CFR 75 certification tests of the NOx CEMS. [40 CFR 60.334(b)(1) and 60.334(b)(3)(ii)]

RECORDKEEPING AND REPORTING REQUIREMENTS

32. Excess Emissions Reports:

a. *Malfunction Notification:* If emissions in excess of a standard (subject to the specified averaging period) occur due to malfunction, 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 Department may request a written summary report of the incident.

b. *BACT Quarterly Permit Limits Excess Emissions 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 following the NSPS format in 40 CFR 60.7(c), Subpart A. Periods of startup, shutdown 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. The report shall also summarize all periods during which the fuel sulfur content exceeded the permitted limit. A summary of data excluded from BACT compliance calculations should also be provided.

c. *NSPS Semi-Annual Excess Emissions Reports*: Within 30 days following each calendar semi-annual period, the permittee shall submit a report on any periods of excess emissions of the applicable NSPS that occurred during the previous semi-annual period. In addition, the report shall summarize the CEMS systems monitor availability for the previous semi-annual period.

[Rules 62-4.130, 62-210.700(5), and 62-212.400 (BACT), F.A.C.; 40 CFR 60.7(c)]

33. Fuel Records:

a. *Natural Gas*: The permittee shall demonstrate compliance with the SO_2 standards of this permit and in 40 CFR 60.333 by complying with the requirements in 40 CFR 75 Appendix D.

b. *Distillate Oil*: For all bulk shipments of distillate oil received at this facility, the permittee shall obtain an analysis identifying the sulfur content. An analysis provided by the fuel vendor is acceptable. Methods for determining the sulfur content of the distillate oil shall be ASTM D129-91, D2622-94, or D4294-90 or equivalent methods. Records shall specify the test method used and shall comply with the requirements of 40 CFR 60.335(d).

[Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

34. Monthly Operations Summary: By the fifteenth calendar day of each month, the owner or operator shall record the following information in a written or electronic log summarizing the previous month of operation and the previous 12 months of operation: hours of gas firing; quantity of gas fired; hours of oil firing; and, quantity of oil fired. The information shall be recorded for each CT and for the group of three CTs. Information may be recorded and stored as an electronic file, but must be available for inspection and/or printing at the request of the Compliance Authority. [Rules 62-4.070(3) and 62-4.160(15), F.A.C.]