**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

BOB MARTINEZ CENTER
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

**PERMITTEE**

Fort Pierce Utilities Authority
4545 Energy Lane
Fort Pierce, Florida 34981

*Authorized Representative:*
Mr. Edward Leongomez, Plant Manager

Air Permit No. 1110121-008-AC
Facility ID No. 1110121
SIC No. 4911
Excess Emissions Revision
Permit Expires: December 31, 2014

**PROJECT**

This is the final air construction permit, which authorizes the revision of the language of air construction permits 1110121-001-AC, 1110121-003-AC, 1110121-004-AC and 1110121-006-AC, dealing primarily with excess emissions for various emission units located at the Treasure Coast Energy Center (the facility). The facility is located in St. Lucie County at 4545 Energy Lane, Fort Pierce, Florida.

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

Syed Arif

Digitally signed by Syed Arif
Date: 2013.11.22 09:25:55 -05'00'

*for* Jeffery F. Koerner, Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

JFK/sa/tbc

## CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Air 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.

Edward Leongomez, Fort Pierce Utilities Authority: ESL@fpua.com
Amy Deese, Florida Municipal Power Agency: amy.deese@fmpa.com
Jerome Guidry, P.E., Perigee Technical Services, Inc.: jerome.guidry@att.net
Joe Lurix, Southeast District Office: joe.lurix@dep.state.fl.us
Kathleen Forney, US EPA Region 4: (forney.kathleen@epa.gov)
Heather Ceron, US EPA Region 4: (ceron.heather@epa.gov)
Barbara Friday, DEP Office of Air Permitting and Compliance: barbara.friday@dep.state.fl.us
Lynn Scearce, DEP Office of Air Permitting and Compliance: 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
2013.11.22 10:14:46
-05'00'

## FACILITY AND PROJECT DESCRIPTION

This facility is a nominal 300 megawatt (MW) gas-fired combined cycle electrical power plant. The plant includes one 170 MW combustion turbine generator, one heat recovery steam generator (HRSG), a 130 MW steam turbine electrical generator (STEG), a 930,000 gallon fuel oil storage tank, a mechanical draft cooling tower, and auxiliary equipment. The facility is located southwest of the City of Fort Pierce, East of Highway 95, in St. Lucie County.

| ID | Emission Unit Description |
|---|---|
| *Regulated Emissions Units* | |
| 001 | Unit 1 consists of a General Electric PG7241 FA gas turbine electrical generator (nominal 170 MW) equipped with evaporative inlet air cooling, a heat recovery steam generator (HRSG) with supplemental duct firing, a HRSG stack, and a steam turbine electrical generator (nominal 130 MW). |
| 002 | One distillate fuel oil storage tank for Unit 1 combustion turbine (930,000 gallons). |
| 003 | One 8-cell mechanical draft cooling tower. |
| 004 | One safe shutdown generator (1,490 horsepower (hp)) with associated 1000 gallon fuel oil storage tank. |
| 005 | One diesel engine fire pump (approximately 290 hp) with associated 500 gallon fuel oil storage tank. |

The Fort Pierce Utilities Authority (FPUA) Treasure Coast Energy Center in Fort Pierce, Florida, currently operates under Title V permit 1110121-007-AV. The purpose of this air construction permit revision is to change specific conditions of underlying existing permits 1110121-001-AC, 1110121-003-AC, 1110121-004-AC and 1110121-006-AC as noted below.

The proposed revisions are as follows:

(1) To add "tuning, load change, full speed no load testing, and compressor blade drying" to allowable CEMS data exclusions for limited use operations.

Comment: Because FPUA is striving to gain more consistency in its Title V permit, it has proposed common language to certain specific conditions that pertain to like combustion turbines. This common language has evolved as FPUA has gained experience in operating and maintaining these turbines and developing proper protocol. These changes, primarily affecting excess emissions identification during startup (both cold and warm), shutdown and malfunction periods, and during tuning sessions (including full speed no load trip tests and compressor blade drying), are acceptable to the Department because proper operator management of these transient conditions results in less steady state emissions and is therefore beneficial to the environment.

(2) To waive the periodic compliance test requirements for those parameters for which compliance is demonstrated continuously.

Comment: The Department has implemented this approach at other facilities. The rationale is that annual stack testing is redundant if an emissions unit is in continuous compliance with applicable standards. When compliance with a standard is demonstrated continuously using continuous emissions monitoring systems (CEMS), annual compliance testing and testing prior to permit renewal is not necessary.

(3) Administrative changes (clarifying continuous operation, etc.)

## REGULATORY CLASSIFICATION

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

NESHAP: The facility operates units subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) in 40 Code of Federal Regulations (CFR) 63.

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

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

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

## RELEVANT DOCUMENTS

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

## 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. The mailing address for the Office of Permitting and Compliance 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 Southeast District Office. The mailing address and phone number of the Southeast District Office are: 400 North Congress Avenue, West Palm Beach, Florida 33401, Telephone: 561/681-6600, Fax: 561/681-6755.

3. Appendices: The following Appendices are attached as part of this permit: Appendix A (Citation Formats and Glossary of Common Terms); Appendix B (General Conditions); and Appendix C (Common Conditions).

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, 62-214, 62-296 and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

The specific conditions in this section apply to the following emissions unit:

| EU No. | Brief Description |
|---|---|
| 001 | Unit 1 consists of a General Electric PG7241 FA gas turbine electrical generator (nominal 170 MW) equipped with evaporative inlet air cooling, a HRSG) with supplemental duct firing, a HRSG stack, and a nominal 130 MW STEG. The stack height is 170 feet with an exit diameter is 19 feet. Commercial operation of the unit began on February 12, 2008. Compliance Assurance Monitoring (CAM) does not apply to the combined cycle unit because the existing nitrogen oxides ($NO_X$) continuous emissions monitoring system (CEMS) is used to demonstrate compliance with emissions limits. |

*{Permitting Note: Except as specified below, this unit remains subject to the applicable requirements established in all previous air construction permits issued for this facility, as included in the current Title V Air Operation Permit No. 1110121-007-AV.}*

PREVIOUS APPLICABLE REQUIREMENTS

**1.** Other Permits: Except as specified below, these units remain subject to the applicable requirements established in all previous air construction permits issued for this facility. [Rule 62-4.070, F.A.C.]

Note: ~~Strikethrough~~ indicates deleted text. Double underline indicates additions.

**2.** To clarify that the units can operate during all available annual hours and to acknowledge allowable periods for excess emissions during operations related to tuning, load change, full speed no load testing and compressor blade drying, Specific Conditions **A.10., A.19., A.29.** and **B.3.** in Section III, of Permit No. 1110121-001-AC, are revised as follows:

**A.10.** Hours of Operation: The gas turbine is permitted to operate continuously ~~may operate throughout the year (8760 hours per year)~~. Restrictions on individual methods of operation are specified in separate conditions. [Rules 62-210.200(PTE) and 62-212.400 (BACT), F.A.C.]

**A.19.** Ammonia Injection: Ammonia injection shall begin as soon as operation of the gas turbine/HRSG system achieves the operating parameters specified by the manufacturer. As authorized by Rule 62-210.700(5), F.A.C., ~~the above condition~~ Specific Conditions **A.18.** and **A.20.** allow~~s~~ excess emissions only for specifically defined periods of startup, shutdown, fuel switching, load change, tuning, full speed no load testing, compressor blade drying, and documented malfunction of the gas turbine/HRSG system including the pollution control equipment. [Design; Rules 62-212.400(BACT) and 62-210.700, F.A.C.]

**A.29.** Monitoring of Capacity: The permittee shall monitor and record the operating rate of the gas turbine and HRSG duct burner system on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown, malfunction, tuning, load change, full speed no load testing, compressor blade drying, and fuel switching). Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of each allowable fuel in accordance with the provisions of 40 CFR 75Appendix D. [Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

**B.3.** Hours of Operation: The hours of operation are not restricted ~~(8760 hours per year)~~. [Applicant Request; Rule 62-210.200(PTE), F.A.C.]

**3.** To remove unneeded words and to establish allowable periods of data exclusions related to excess emissions resulting from operations related to tuning, load change, full speed no load testing and compressor blade drying, Specific Conditions **4.** (which revised Specific Condition **A.13.** of permit No. 1110121-001-AC), and Specific Condition **6.** (which revised Specific Condition **A.26.e.** of permit No. 1110121-001-AC) of Permit No. 1110121-003-AC are revised as follows:

**4. (A.13.)** Emission Standards: Emissions from the turbine/HRSG system shall not exceed the following standards.

| Pollutant | Fuel | Method of Operation | Stack Test, 3-Run Average | | CEMS Average |
|---|---|---|---|---|---|
| | | | ppmvd @ 15% $O_2$ | lb/hr [f] | ppmvd @ 15% $O_2$ |
| CO [a] | Oil | Combustion Turbine (CT) (w/o duct burner) | 8.0 | 37.8 | 8.0, 24-h block |
| | | CT & Duct Burner (DB) | 8.0 | 47.3 | |
| | Gas | CT, ~~Normal~~ (w/o duct burner) | 4.1 | 17.2 | |
| | | CT & (DB) | 7.6 | 40.1 | |
| | Oil/Gas | All Modes | NA | NA | 6.0, 12-month rolling |
| $NO_X$ [b] | Oil | CT (w/o duct burner) | 8.0 | 62.0 | 8.0, 24-hr block 42, 30-day rolling[g] |
| | | CT & DB | 8.0 | 78.0 | |
| | Gas | CT, ~~Normal~~ (w/o duct burner) | 2.0 | 13.9 | 2.0, 24-hr block 15, 30-day rolling[g] |
| | | CT & DB | 2.0 | 17.7 | |
| $PM/PM_{10}$ [c] | Oil/Gas | All Modes | 0.0015% sulfur fuel oil, 2 gr S/100 SCF of gas | | |
| | | | Visible emissions shall not exceed 10% opacity for each 6-minute block average. | | |
| SAM/$SO_2$ [d] | Oil/Gas | All Modes | 0.0015% sulfur fuel oil, 2 gr S/100 SCF of gas | | |
| Ammonia [e] | Oil/Gas | CT, All Modes | 5.0 | NA | NA |

**6. (A.26.e.)** *Data Exclusion:* Each CEMS shall monitor and record emissions during all operations including episodes of startup, shutdown, load change, full speed no load testing, compressor blade drying, malfunction, fuel switches and ~~DLN~~ tuning. Some of the CEMS emissions data recorded during these episodes may be excluded from the corresponding CEMS compliance demonstration subject to the provisions of Condition Nos. 18 and 20 of this section. All periods of data excluded shall be consecutive for each such episode and only data obtained during the described episodes (startup, shutdown, load change, full speed no load testing, compressor blade drying, malfunction, fuel switches, and ~~DLN~~ tuning) may be used for the appropriate exclusion periods. The permittee shall minimize the duration of data excluded for such episodes to the extent practicable. Data recorded during such episodes 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 such episodes. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.

**4.** To waive the periodic compliance test requirements for those parameters for which compliance is

demonstrated continuously, Specific Condition **4.** of Permit No. 1110121-004-AC (which revised Specific Condition **A.23.** of permit No. 1110121-003-AC) is revised as follows:

**4.(A.23.)** Annual Compliance Tests: During each federal fiscal year (October 1st, to September 30th), the gas turbine shall be tested to demonstrate compliance with the emission standard for visible emissions. ~~$NO_x$ and CO emissions data collected during the required continuous monitor Relative Accuracy Test Audits (RATAs) may be used to demonstrate compliance with the CO and $NO_x$ standards.~~ CO emissions recorded by the CEMS shall be reported for the visible emissions observation period. If the duct burner did not operate more than 400 hours during the federal fiscal year, testing with the duct burner on is waived for this requirement. [Rules 62-212.400 (BACT) and 62-297.310(7)(a)4, F.A.C.]

**5.** To establish allowable periods for excess emissions during operations related to tuning, load change, full speed no load testing and compressor blade drying, Specific Conditions **2**. (which revised Specific Condition **A.18.** of permit No. 1110121-004-AC), **3.** (which revised Specific Condition **A.20.** of permit No 1110121-004-AC) and **4.** (which revised Specific Condition **A.33.b.** of permit No. 1110121-001-AC) of Permit No. 1110121-006-AC are revised as follows:

**2. (A.18.)** Excess Emissions Allowed: Excess emissions resulting from startup, shutdown, fuel switching, load change, and documented malfunctions shall be permitted, provided that operators employ the best operational practices to minimize the amount and duration of emissions during such incidents. For the gas turbine (CTG)/HRSG system, excess emissions resulting from startup, shutdown, fuel switching, load change, or documented malfunctions shall not exceed ~~two hours~~ the following specified time periods in a 24-hour block (as defined in Specific Condition 26c.). ~~A "documented malfunction" means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.~~

a. – e. No Change.

f. *Documented Malfunction*: For the CTG/HRSG system, excess emissions resulting from documented malfunctions shall not exceed two hours in a 24-hour block. A "documented malfunction" means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.

**g.** *Load Change:* Excess emissions due to load change shall not exceed 2 hours in a 24-hour block.

**3. (A.20.)** CEMS Data Exclusion – Limited Use Operations. CEMS data collected during any of the following limited use operational periods may be excluded from the compliance averages.

(a) ~~DLN~~ Tuning: CEMS data collected during initial or other major DLN, ammonia injection grid (AIG), or water injection system tuning sessions ~~shall~~ may be excluded from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer's specifications. A "major tuning session" would occur after completion of initial construction, a combustor change-out, a major repair or maintenance to a combustor, or circumstances as identified or requested by the equipment vendor. Prior to performing any major tuning session, where the intent is to exclude data from the CEMS compliance demonstration, the permittee shall provide the Compliance Authority with an advance notice of at least one working (business) day that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail.

(b) *Compressor Blade Drying.* Following a compressor blade wash in accordance with the manufacturer's recommendations (or industry standards), 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 in accordance with the manufacturer's recommendations (or industry standards).

*(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.)*

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

**4. (A.33.b.)** *SIP Semiannual Report*: Within 30 days following the end of each calendar half, the permittee shall submit a report to the Compliance Authority summarizing periods of CO and $NO_X$ emissions in excess of the BACT permit standards following the NSPS format in 40 CFR 60.7(c), Subpart A. Periods of startup, shutdown, fuel switching, 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 calendar-half.

**6.** Two specific conditions were revised in Permit No. 1110121-003-AC to properly align reporting requirements and result in consistency with the semiannual reporting requirement already previously implemented.

**(A.26.f.)** *Availability*: Monitor availability for the CEMS shall be 95% or greater in any calendar quarter. The ~~quarterly~~ semi-annual excess emissions report shall be used to demonstrate quarterly monitor availability. In the event 95% availability is not achieved, 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, except as otherwise authorized by the Department's Compliance Authority.

The permitting note after Specific Condition **A.32.** was revised.

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