FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
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PERMITTEE

Duke Energy Florida, Inc.
3219 State Road 630 West
Ft. Meade, Florida 33841-9778

Authorized Representative:
Mr. Anthony Salvarezza, General Manager

Permit No. 1050223-017-AC/PSD-FL-190F
Minor Air Construction Permit Revision
Tiger Bay Cogeneration Facility
Facility ID No. 1050223
Methods of Operation Changes

PROJECT

This is the final air construction permit, which revises several specific conditions of previously issued air construction permit Nos. AC53-214903/PSD-FL-190 and 1050223-013-AC/PSD-FL-190A, for the Combined-cycle Combustion Turbine (CT) and Heat Recovery Steam Generator (HRSG) which are emission unit (EU) EU No. 001 at the facility. The revised permit conditions are related to the removal of distillate fuel oil as a backup fuel and revise the excess emissions resulting from combusting tuning session for the CT and HRSG.

The proposed work will be conducted at the existing Tiger Bay Cogeneration Facility, which is a power plant categorized under Standard Industrial Classification No. 4911. This existing plant is located in Polk County at 3219 State Road 630 West in Ft. Meade, Florida. The UTM coordinates are: Zone 17, 416.2 km East and 3069.22 km North; Latitude: 27° 44’ 56” North and Longitude: 81° 51’ 0” West.

This final permit is organized into the following sections: Section 1 (General Information) and Section 2 (Permit Revisions).

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 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. A copy of this permit modification shall be filed with the referenced permit and shall become part of the permit.

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.

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

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CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Final Air Permit package (including the Final Determination and Final Permit with Appendices) 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.

Mr. Anthony Salvarezza, Duke Energy Florida, Inc.: Anthony.Salvarezza@duke-energy.com
Mr. Chris Bradley, Bradley, Duke Energy Florida, Inc.: chris.bradley@duke-energy.com
Mr. Ziqi He, P.E., Conestoga-Rovers & Associates, Inc.: zhe@craworld.com
Ms. Cindy Zhang-Torres, P.E., DEP SWD: zhang-torres@dep.state.fl.us
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Ms. 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.

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FACILITY DESCRIPTION

This existing facility is a nominal 270 MW (megawatts) electrical generation facility comprised of one General Electric Model MS7221 FA combined-cycle combustion turbine (CT) that exhausts through a heat recovery steam generator (HRSG). The facility also has an emergency diesel generator (EU 004) rated at 415 horsepower (HP) and an emergency diesel-fired fire pump engine (EU 005) rated at 210 HP which are regulated under 40 CFR 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE) adopted in Rule 62-204.800(11)(b), F.A.C.

FACILITY REGULATORY CLASSIFICATION

- This facility is not a major source of hazardous air pollutants (HAP).
- This 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 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400 (PSD), F.A.C.

PROPOSED PROJECT

As part of the project to renew the Title V air operation permit (Project No. 1050223-018-AV), the applicant has requested a concurrent air construction permit revision, to change several of the underlying air construction permit conditions. One of the requested changes is related to the removal of distillate fuel oil as a backup fuel for the CT and HRSG, also removing the emissions limits related to the duct burner (the duct burner were not installed). The other change involves revising excess emission provisions to include activities related to optimization of operations and maintenance of the CT, HRSG, steam turbine and/or associated equipment.

APPLICABLE STANDARDS AND REGULATIONS

1. Existing Permits. This permit does not authorize any new construction or increases in allowable operating limitations or emissions limits. This permit supplements all existing valid air permits. Except as specified below, the permittee shall continue to comply with all applicable conditions from valid air construction and operation permits. The proposed project involves no physical changes and no obvious operational changes to the facility. It does not involve any maintenance, repair or replacement tasks. [Rule 62-4.070(3), F.A.C.]

The following conditions of previous permits are revised as indicated below. ~~Strikethrough~~ is used to denote the deletion of text. Double-underlines are used to denote the addition of text. All changes are emphasized with yellow highlight for ease of location.

PERMIT BEING MODIFIED: AC53-214903/PSD-FL-190

Affected Emissions Units: Combined-cycle Combustion Turbine and Heat Recovery Steam Generator, EU 001.

(The remainder of the permit remains unchanged as a result of this permitting action)

2. To remove distillate fuel oil as an allowable fuel, in order to classify the EU 001 (CT and HRSG) as a natural gas unit, also to remove the emissions limits related to the duct burner (the duct burner were not installed). **Specific Conditions Nos**. **2**, **4** and **5a** of permit No. AC53-214903/PSD-FL-190 are revised as follows:

Emission Limits

2. Visible emissions for full load operation shall not exceed 10% opacity when firing natural gas ~~and 20% opacity when firing distillate fuel oil~~.

Operation Rates

4. This source is allowed to use natural gas as the primary fuel for 8,760 hours per year ~~and low sulfur distillate fuel oil (0.05% S) as the secondary fuel up to 3,742,327 gallons per calendar year~~.

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5. ~~a) The maximum heat input of 1,849.9 MMBtu/hr (LHV) at 27 F and at base load for distillate fuel oil.~~

3. The affected excerpts of Table 1 from **Specific Condition 1** of Permit No. AC53-214903/PSD-FL-190 and the Best Available Control Technology (BACT) Determination dated May 17, 1993 are hereby changed as follows:

Table 1 – Allowable Emission Rates

Pollutant	Fuel[A]	Allowable Emission[C] Standard/Limitation	Basis
NO_X (CT)	Gas	15 ppmvd @15% O_2 (97.2 lbs/hr, 425.7 TPY)[B]	BACT
	Gas	25 ppmvd @15% O_2 (161.9 lbs/hr, 709.1 TPY)	BACT
	~~Oil~~	~~15 ppmvd @15% O_2 (97.2 lbs/hr, 425.7 TPY)~~	~~BACT~~
~~NO_X (DB)~~	~~Gas~~	~~0.1 lbs/MMBtu (10 lbs/hr, 43.8 TPY)~~	~~BACT~~
CO (CT)	Gas	15 ppmvd @15% O_2 (48.8 lbs/hr, 213.7 TPY)[D]	BACT
	~~Oil~~	~~30 ppmvd @15% O_2 (98.4 lbs/hr, 14.8 TPY)~~	~~BACT~~
~~CO (DB)~~	~~Gas~~	~~10 lbs/hr; 43.8 TPY~~	~~BACT~~
VOC (CT)	Gas	2.8 lbs/hr; 12.3 TPY	BACT
	~~Oil~~	~~7.5 lbs/hr; 1.1 TPY~~	~~BACT~~
~~VOC (DB)~~	~~Gas~~	~~2.9 lbs/hr; 12.7 TPY~~	~~BACT~~
PM_{10} (CT)	Gas	9 lbs/hr; 39.4 TPY	BACT
	~~Oil~~	~~17 lbs/hr; 2.6 TPY~~	~~BACT~~
~~PM_{10} (DB)~~	~~Gas~~	~~0.0100 lbs/hr; 12.7lbs/MMBtu~~	~~BACT~~
SO_2 (CT)	Gas	4.86 lbs/hr; 21.3 TPY	Appl.
	~~Oil~~	~~99.7 lbs/hr; 15.0 TPY~~	~~Appl.~~
~~SO_2 (DB)~~	~~Gas~~	~~0.3lbs/hr; 1.325 TPY~~	~~Appl.~~
H_2SO_4 (CT)	Gas	5.95×10^{-1} lbs/hr; 2.6 TPY	Appl.
	~~Oil~~	~~1.22 lbs/hr; 0.183 TPY~~	~~Appl.~~
~~H_2SO_4 (DB)~~	~~Gas~~	~~3.7×10^{-2} lbs/hr; 1.61×10^{-1} TPY~~	~~Appl.~~
Opacity	Gas	10 % Opacity	BACT
	~~Oil~~	~~20% Opacity~~	~~BACT~~

A) Fuel: Natural Gas: Emissions are based on 8,760 hours per year operating time.
~~Fuel: Distillate Fuel Oil (0.05% S): Emissions are based on fuel usage equivalent to 300 hours per year at maximum capacity (i.e., 3,742,327 gallons per year).~~

PERMIT BEING MODIFIED: 1050223-013-AC/PSD-FL-190A (Previously revised permit No. AC53-214903/PSD-FL-190, Specific Condition 22).

Affected Emissions Units: Combined-cycle Combustion Turbine and Heat Recovery Steam Generator, EU 001. (The remainder of the permit remains unchanged as a result of this permitting action)

4. To revise the excess emissions resulting from combusting tuning for the CT and HRSG, EU 001, Specific Condition No. 22 is revised as follows:

22. a. This source shall be in compliance with all applicable provisions of F.A.C. Rules 62-210.650: Circumvention; 62-210.700: Excess Emissions; 62-296.800: Standards of Performance for New Stationary Sources (NSPS); 62-297: Stationary Sources-Emissions Monitoring; and, 62-4.130: Plant Operation-Problems.

b. Excess emissions resulting from activities related to optimization of operations and maintenance of the combustion turbine, HRSG, steam turbine and/or associated equipment "tuning session" including, but not limited to, combustor tuning sessions, shall be permitted provided the tuning session is performed in accordance with the manufacturer's specifications and in no case shall exceed 72 hours in any

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calendar year. A "tuning session" would occur after a combustor change-out, a repair to a combustor, or as required to maintain compliance or to optimize operation and/or maintenance of the combustion turbine, HRSG, steam turbine and/or associated equipment. Prior to performing any tuning session, the permittee shall provide the Compliance Authority with an advance notice that details the activity and proposed tuning session schedule. The notice may be made by telephone, facsimile transmittal, or electronic mail.

[Rule 62-210.700(1) & (5), F.A.C.; and, applicant request]

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