FLORIDA DEPARTMENT OF Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

FPERMITTEE

Tampa Electric Company
13031 Wyandotte Road
Gibsonton, Florida 33534-5833

Authorized Representative:
Amy Butler, Manager – Air and Water Programs

Air Permit No. 0570039-140-AC
Permit Expires: December 31, 2024
Minor Air Construction Permit
Big Bend Station
Unit 4 Water Wall Tube Rework Project

PROJECT

This is the final air construction permit, which authorizes the rework of selected water wall tube panels and the upgrade of selected corner panels for Big Bend Unit 4. The proposed work will be conducted at the existing Big Bend Station, which is an electric generation facility categorized under Standard Industrial Classification No. 4911. The existing facility is in Hillsborough County at 13031 Wyandotte Road in Gibsonton, Florida. The UTM coordinates are Zone 17, 363.15 kilometers (km) East and 3,074.91 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.

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.

(DRAFT)

David Lyle Read, P.E., Environmental Administrator, SES
Permit Review Section
Division of Air Resource Management

DRAFT

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.

Ms. Amy Butler, Tampa Electric Company: ambutler@tecoenergy.com
Mr. Robert Velasco, P.E., BCEE, QEP, Tampa Electric Company: ravelasco@tecoenergy.com
DEP Southwest District Office: SWD_Air_Permitting@dep.state.fl.us
Ms. Diana Lee, Environmental Protection Commission of Hillsborough County: lee@epchc.org
DEP Siting Office: SCO@dep.state.fl.us
Ms. Amy Hilliard, DEP PRS: Amy.Hilliard@FloridaDEP.gov

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.

(DRAFT)

DRAFT

FACILITY DESCRIPTION

The Tampa Electric Company (TEC) Big Bend Station is a nominal 2,083 megawatt (MW) electric generation facility, which is classified under Standard Industrial Classification Code No. 4911. The facility consists of two fossil fuel fired utility boilers (Units 3 and 4); four steam turbines; a simple cycle combustion turbine (SCCT)-generator peaking unit set consisting of 2 SCCTs (SCCT Units 4A and 4B); a combined cycle combustion turbine (CCCT)-generator set consisting of two SCCTs (CTs 5 and 6) and heat recovery steam generators (HRSGs) connected to a single steam turbine generator that can operate in simple cycle and combined cycle modes; solid fuels, fly ash, limestone, gypsum, slag, and bottom ash storage and handling facilities; and fuel oil storage tanks. Units 3 and 4 are fired with varying combinations of natural gas, coal, petroleum coke, and coal residual from the TEC Polk Power Station. SCCT Units 4A and 4B are fired with natural gas and ultra-low sulfur diesel (ULSD). CTs 5 and 6 are fired with natural gas. The natural gas distribution system at the facility is supported by 2 natural gas-fired process heaters. The facility is also supported by 3 diesel engine driven emergency generators and a surface coating operation for miscellaneous metal parts used by the facility.

PROPOSED PROJECT

TEC submitted an application requesting authorization to rework selected north, east, and west water wall tube panels and to upgrade selected northeast, northwest, southeast, and southwest corner panels for Big Bend Unit 4. The purpose of the project is to address welding cracks on newly installed tubes and other tube integrity issues in order to return Unit 4 to its normal rated capacity. This project will also compile and revise applicable requirements from Permit Nos. 0570039-122-AC, 129-AC, 131-AC, and 133-AC, for improved clarity.

This project will affect the following emissions unit.

EU No.	Description
004	Fossil Fuel Fired Steam Generator Unit No. 4

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, F.A.C. for the PSD of Air Quality.
- The facility operates units subject to the New Source Performance Standards (NSPS) of Title 40 Part 60 of the Code of Federal Regulations (40 CFR 60).
- The facility operates units subject to the National Emissions Standards of Hazardous Air Pollutants (NESHAP) of 40 CFR 63.

DRAFT

SECTION 2. ADMINISTRATIVE REQUIREMENTS (DRAFT)

1. Permitting Authority: The permitting authority for this project is the Permit Review Section in the Division of Air Resource Management of the Department of Environmental Protection (Department). The Permit Review Section 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 Environmental Protection Commission of Hillsborough County at: 362 Queen Palm Drive, Tampa, Florida 33619-1309.

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 E (40 CFR 60, Appendix C – Determination of Emission Rate Change); and Appendix F (Student's t-test Table).

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.]

8. Source Obligation:
   a. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.
   b. At such time that a particular source or modification becomes a major stationary source or major modification (as these terms were defined at the time the source obtained the enforceable limitation) solely by exceeding its projected actual emissions, then the requirements of subsections 62-212.400(4) through (12), F.A.C., shall apply to the source or modification as though construction had not yet commenced on the source or modification.

   [Rule 62-212.400(12), F.A.C.]

9. Application for Title V Permit: This permit authorizes construction of the permitted emissions units and initial operation to determine compliance with Department rules. A Title V air operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V air operation

permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050 and Chapter 62-213, F.A.C.]

DRAFT

A. Fossil Fuel Fired Steam Generator Unit No. 4 (EU 004)

This section of the permit addresses the following emissions unit.

EU No.	Description
004	Fossil Fuel Fired Steam Generator Unit No. 4

Unit 4 is fired with natural gas only, solid fuel only, or co-fired natural gas and solid fuels consisting of a maximum of 20% petroleum coke by weight, or solid fuel blend blended with coal residual generated from the Polk Power Station.

Unit 4 is a 4,330 MMBtu/hour, dry bottom, tangentially fired utility boiler manufactured by Combustion Engineering. The generator nameplate capacity is 486 MW. PM emissions generated during the operation of the unit are controlled by a dry ESP manufactured by Belco. The control efficiency of the ESP is 99.7%. SO_2 emissions are controlled by wet FGD equipment installed in 1995 and manufactured by Research-Cottrell. NO_X emissions are controlled by LNB, a separate overfire air system (SOFA) and its own SCR system. The SCR system was installed in May 26, 2007. The Unit 4 stack (BB-004) is 490 feet (ft) tall with an exit diameter of 24 ft. Exhaust gas exits the stack at a temperature of 127 degrees Fahrenheit (°F) and a flow rate of 1,614,250 actual cubic feet per minute (acfm). The BB-04 stack is equipped with a NO_X CEMS and an SO_2 CEMS to continuously monitor emissions of NO_X and SO_2. Unit 4 began commercial operation in 1985.

{Permitting Note: This emissions unit is regulated under the federal Acid Rain Program for Phase II SO_2 and NO_X; NSPS Subparts A, General Provisions, and Da (Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978) of 40 CFR 60, both adopted and incorporated by reference in Rule 62-204.800, F.A.C.; NESHAP Subparts A, General Provisions, and UUUUU (NESHAP: Coal- and Oil-Fired Electric Utility Steam Generating Units) of 40 CFR 63, both adopted and incorporated by referenced in Rule 62-204.800, F.A.C.; Rule 62-212.400, F.A.C.; PSD [PSD-FL-040]; Rule 62-296.405, F.A.C., Fossil Fuel Steam Generators with More than 250 MMBtu/hour Heat Input; Rule 62-296.700, F.A.C., PM RACT; and Power Plant Siting Certification [PA 79-12].}

PREVIOUS APPLICABLE REQUIREMENTS

1. Other Permits: Unless otherwise specified in this subsection, this emissions unit remains subject to the applicable requirements established in all previous air construction permits issued for this facility. [Rule 62-4.070(3), F.A.C.]

EQUIPMENT

2. Tube Replacement:
   a. *Water Wall Tube Panels*. The permittee is authorized to repair and replace as necessary (*i.e.*, rework) the following selected north, east, and west water wall tube panels for Unit 4. *{Note: OD means outer diameter, and MWT means minimum wall thickness.}*

Panel Elevation	Specification	Section	Length (ft)	No. of Tubes	Tube Area (sq. ft.)
97'6" – 150'6"	2" OD X 0.203MWT11	West	53	90	983
97'6" – 143'			45.5	33	303
143' – 150'			7	80	115
100' – 129'		East	29	121	725
129' – 144'6"			15.5	8	23
110' – 150'		North	40	8	58
110' – 150'			40	30	242
110' – 150'			40	23	183
110' – 150'			40	26	208
110' – 150'			40	17	133

Panel Elevation	Specification	Section	Length (ft)	No. of Tubes	Tube Area (sq. ft.)
110' – 150'			40	25	200
110' – 150'			40	18	142

b. *Water Wall Corner Panels*. The permittee is authorized to upgrade the following selected water wall tube corner panels for Unit 4. *{Note: OD means outer diameter, and MWT means minimum wall thickness.}*

Panel Elevation	Specification	Corner	Section	Length (ft)	No. of Tubes	Tube Area (sq. ft.)
60' – 82'9"	2" OD X 0.203MWT11	Northeast	Lower Straight	22.75	23	104
82'9" – 115'6"			Burner Panel	32.75	23	150
115'6" – 131'11"			Upper Straight	16.5	23	76
131'11" – 160'			Sofa Panel	28.1	23	129
60' – 82'9"		Northwest	Lower Straight	22.75	23	104
82'9" – 115'6"			Burner Panel	32.75	23	150
115'6" – 131'11"			Upper Straight	16.5	23	76
131'11" – 160'			Sofa Panel	28.1	23	129
60' – 82'9"		Southeast	Lower Straight	22.75	23	104
82'9" – 115'6"			Burner Panel	32.75	23	150
115'6" – 131'11"			Upper Straight	16.5	23	76
131'11" – 160'			Sofa Panel	28.1	23	129
60' – 82'9"		Southwest	Lower Straight	22.75	23	104
82'9" – 115'6"			Burner Panel	32.75	23	150
115'6" – 131'11"			Upper Straight	16.5	23	76
131'11" – 160'			Sofa Panel	28.1	23	129

c. The exact length and number of tubes to be replaced is approximate and may change depending upon boiler tube conditions. Additional tube replacement that would result in aggregate replacement of more than 15% of the total tube area (*i.e.*, outside the scope of this project) must be approved by the Department.

[Application No. 0570039-140-AC]

TESTING REQUIREMENTS

Specific Condition 3 replaces the following NSPS Subpart Da applicability determination conditions: Permit No. 0570039-122-AC Section 3A Condition 7; 0570039-129-AC Section 3C Condition 7; 0570039-131-AC Section 3A Condition 2; and 0570039-133-AC Section 3A Condition 3.

3. NSPS Subpart Da Applicability Determination: The permittee shall conduct PM, SO_2, and NO_X emissions tests on Unit No. 4 in accordance with Appendix C of 40 CFR 60 – Determination of Emission Rate Change (see Appendix E) once Unit No. 4 is capable of achieving 90% of design capacity. The permittee shall record continuous PM, SO_2, and NO_X CEMS emission rates (in pounds per hour) while firing solid fuels for 2 time periods. The first time period shall use data representative of the highest achievable capacity prior to conducting the authorized work necessary to achieve 90% of design capacity, and the second period shall use data gathered at testing capacity (*i.e.*, at least 90% of design capacity). The number (n) of runs shall be between 20 and 29 for each time period. Each data set shall be used to conduct a Student's t-test with a 95% confidence interval (Student's t-test Table in Appendix F). If the Student's t-test data shows PM, SO_2, and/or NO_X emissions increases, Unit No. 4 shall become subject to the PM standards in 40 CFR 60.42Da(e), the SO_2 standards in 40 CFR 60.43Da(l), and/or the NO_X standards in 40 CFR 60.44Da(g), respectively, and the permittee shall immediately begin complying with all of the provisions applicable to Unit No. 4. In such

case(s), the applicable provisions of 40 CFR 60, Subpart Da will be incorporated into the facility's Title V air operation permit during the next revision. [Rules 62-4.070(3) & 62-297.310(3)(b), F.A.C.; 40 CFR 60.14; and Application No. 0570039-140-AC]

RECORDKEEPING AND REPORTING REQUIREMENTS

4. NSPS Subpart Da Applicability Determination Report: The permittee shall prepare and submit a report for the tests required in **Specific Condition 3** of this subsection in accordance with the requirements specified in Appendix D (Common Testing Requirements). The test report shall include the Student's t-test, the data sets used, the heat input and amount of fuel fired in Unit 4 during each data set, and the load generated by the boiler. The report shall be submitted to the Permitting Authority within 45 days of completion of the tests. [Rules 62-4.070(3), F.A.C. & 62-297.310(10), F.A.C.; and, Application No. 0570039-140-AC]

Specific Condition 5 replaces the following actual emissions reporting conditions: Permit No. 0570039-122-AC Section 3A Condition 11; 0570039-129-AC Section 3C Condition 11, and 0570039-133-AC Section 3A Condition 5.

5. Actual Emissions Reporting: This permit is based on an analysis that compared baseline actual emissions with projected actual emissions and avoided the requirements of subsection 62-212.400(4) through (12), F.A.C., for several pollutants. Therefore, pursuant to Rule 62-212.300(1)(e), F.A.C., the permittee is subject to the following monitoring, reporting, and recordkeeping provisions.
   a. The permittee shall monitor the emissions of any PSD pollutant that the Department identifies could increase as a result of the construction or modification and that is emitted by any emissions unit that could be affected; and, using the most reliable information available, calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change. Emissions shall be computed in accordance with the provisions in Rule 62-210.370, F.A.C., which are provided in Appendix C of this permit.
   b. The permittee shall report to the Department's permitting and compliance authority within 60 days after the end of each calendar year during the 5-year period setting out the unit's annual emissions during the calendar year that preceded submission of the report. The report shall contain the following:
      (1) The name, address, and telephone number of the owner or operator of the major stationary source;
      (2) The annual emissions calculations pursuant to the provisions of 62-210.370, F.A.C., which are provided in Appendix C of this permit;
      (3) If the emissions differ from the preconstruction projection, an explanation as to why there is a difference; and
      (4) Any other information that the owner or operator wishes to include in the report.
   c. The information required to be documented and maintained pursuant to subparagraphs 62-212.300(1)(e)1 and 2, F.A.C., shall be submitted to the Department, which shall make it available for review to the general public.
   d. The permittee shall compute and report annual emissions in accordance with Rule 62-210.370(2), F.A.C. as provided by Appendix C of this permit. For this project, the permittee shall use the following methods in reporting the actual annual NO_X, SO_2, PM, and CO emissions for Unit No. 4:
      (1) The permittee shall use data collected from the CEMS to determine and report the actual annual emissions of NO_X, SO_2, PM, and CO.
      (2) As defined in Rule 62-210.370(2), F.A.C., the permittee shall use a more accurate methodology if it becomes available.

   [Rules 62-212.300(1)(e) and 62-210.370, F.A.C.; and Application 0570039-140-AC]

   {Permitting Note: Baseline emissions of NO_X, SO_2, PM, and CO were determined to be 1,224 TPY, 3,109 TPY, 62 TPY, and 1,699 TPY, respectively. No could have accommodated (CHA) emissions were used in the

applicant's PSD applicability analysis. The reporting period shall begin with the first full calendar year following the completion of construction authorized by this permit and Permit No. 0570039-133-AC.}

DRAFT