



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 4  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET, SW  
ATLANTA, GEORGIA 30303-8960

July 25, 2023

Mr. Robert A. Velasco  
Air and Water Programs  
Environmental Services Department  
Tampa Electric Company  
702 North Franklin Street  
Tampa, Florida 33602

Dear Mr. Velasco:

This is in response to your letter dated August 10, 2022, requesting approval of a continuous monitoring system (CMS) plan petition for Title 40, Code of Federal Regulation (C.F.R.), Part 63, Subpart YYYYY - National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Combustion Turbines, as it applies to two combustion turbines operated by Tampa Electric Company (TECO), Big Bend Station, in Gibsonton, Florida. The U.S. Environmental Protection Agency (EPA) requested additional information from you on October 6, 2022, January 5, 2023, February 1, 2023, March 30, 2023, April 4, 2023, May 8, 2023, May 16, 2023, and June 9, 2023, and received information on December 5, 2022, January 5, 2023, March 2, 2023, March 30, 2023, May 8, 2023, May 15, 2023, June 8, 2023, and June 9, 2023. Based on our review of available information, your CMS plan is acceptable, subject to specific conditions. Details regarding the CMS plan and the basis for our determination are provided in the remainder of this letter.

**Description of Combustion Turbine Unit Emission Points CT 5 and CT 6**

TECO owns and operates two lean premix gas-fired General Electric (GE) Model 7HA.02 combustion turbines (CT 5 and CT 6). Each combustion turbine is rated at a capacity of 350 megawatts (MW). Historically, the combustion turbines were operated in simple cycle mode without a heat recovery steam generator (HRSG). On December 16, 2022, two newly constructed HRSGs (HRSG 5 and HRSG 6, dedicated to CT 5 and CT 6, respectively) commenced operation. As a result, CT 5 and CT 6 are able to operate in either simple cycle or combined cycle mode. Per communication with TECO, each combustion turbine is expected to operate 7% of time in simple cycle mode and 93% of time in combined cycle mode. Since the turbines were constructed after January 14, 2003, they are newly affected sources under Subpart YYYYY. None of the turbines are equipped with an oxidation catalyst to control emissions of formaldehyde.

**Description of TECO's CMS Petition**

TECO proposes to continuously monitor and record combustion turbine gross load, in MW, to indicate compliance with the formaldehyde emission standard during normal operation. Based on the results obtained from engineering stack test conducted on the two turbines, TECO states that operation of the turbines at or above a gross load of 105 MW will ensure compliance with the formaldehyde emission standard. TECO proposes to monitor and record the gross load and determine the four-hour rolling averages of gross load to indicate compliance with the formaldehyde emission limitation during normal

operation. TECO proposes to use a six-hour block average of the gross load for warm startup events and nine-hour block average of the gross load for cold startup events. TECO proposes to use the JEMStar II meter (model JSII-05R6010-1B-2B-DIO-AO2-PQ) to measure gross load and recalibrate the equipment as needed. TECO also seeks the EPA's approval of a previous engineering stack test conducted on June 22, 2022, and June 23, 2022, as the initial compliance demonstration testing.

### **EPA's Review of Subpart YYYY Standards and CMS Petition Requirements**

Under 40 C.F.R. § 63.6085, owners and operators are subject to Subpart YYYY if they own or operate a stationary combustion turbine located at a major source of hazardous air pollutant (HAP) emissions. Under 40 C.F.R. § 63.6090(a)(2), a stationary combustion turbine is a new source if construction commenced after January 14, 2003. Under 40 C.F.R. § 63.6095(a)(3), new lean premix gas-fired stationary combustion turbines which started operation on or before March 9, 2022, must comply with the emissions limitations and operating limitations in Subpart YYYY no later than March 9, 2022. Under 40 C.F.R. § 63.6100, each new lean premix gas-fired stationary combustion turbine must comply with the emission and operating limitations in Table 1 and Table 2 of Subpart YYYY, respectively. Regarding the emissions standard, Table 1 of Subpart YYYY limits the concentration of formaldehyde to 91 parts-per-billion by volume, dry basis (ppbvd), or less, at 15-percent oxygen (O<sub>2</sub>) for new lean premix gas-fired stationary combustion turbines, except during the period of turbine startup excluded by the rule (e.g., first hour of startup for single cycle operation and first three hours of startup for combined cycle operation). Table 2 of Subpart YYYY requires owners/operators to maintain the turbines within operating limitations approved by the EPA Administrator to continuously demonstrate compliance with the emission limit during non-testing periods.

Under 40 C.F.R. § 63.6105(a), after September 8, 2020, owners/operators must comply with the applicable emission limitations, operating limitations, and other requirements of Subpart YYYY. Under 40 C.F.R. § 63.6105(c), after September 8, 2020, owners/operators must always operate and maintain any affected source in a manner consistent with safety and good air pollution control practices for minimizing emissions.

Under 40 C.F.R. § 63.6110(a), owners/operators must conduct the initial performance tests, or other initial compliance demonstrations in Table 4 to Subpart YYYY that apply, within 180 calendar days after the compliance date specified (e.g., by September 8, 2022) for affected source stationary combustion turbines according to the provisions in 40 C.F.R. § 63.7(a)(2), unless a historical test may be accepted according to the provisions of 40 C.F.R. § 63.6110(b). Under 40 C.F.R. § 63.6115, subsequent performance tests must be performed on an annual basis as specified in Table 3 to Subpart YYYY.

Under 40 C.F.R. § 63.6125(b), for a stationary combustion turbine not using an oxidation catalyst to comply with the formaldehyde emission limit, owners/operators must continuously monitor any parameters specified in a petition approved by the Administrator to comply with the operating limitations in Table 2 to Subpart YYYY, as specified in Table 5 to Subpart YYYY.

Under 40 C.F.R. § 63.6120(f), for a stationary combustion turbine not equipped with an oxidation catalyst, owners/operators may petition the Administrator for approval of operating limitations to demonstrate compliance with the formaldehyde emission limitation during non-testing periods. In these cases, the petition must include:

- (1) Identification of the specific parameters you propose to use as additional operating limitations;

- (2) A discussion of the relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters and how limitations on these parameters will serve to limit HAP emissions;
- (3) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;
- (4) A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and
- (5) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

Under 40 C.F.R. § 63.6125(e), after September 8, 2020, for owners/operators using a CMS to indicate compliance with the formaldehyde emissions standard during non-testing periods, a CMS quality control program must be developed and implemented which includes written procedures for the CMS according to 40 C.F.R. § 63.8(d)(1-2). Additionally, a program of corrective action should be included in the plan required under 40 C.F.R. § 63.8(d)(2).

Under 40 C.F.R. § 63.6135(a), except for monitor malfunctions, associated repairs, and required applicable quality assurance or quality control activities, owners/operators must always conduct all parametric monitoring when the stationary combustion turbine is operating.

Under 40 C.F.R. § 63.6120(e), when a CMS petition is required to be submitted to the Administrator, owners/operators must not conduct the initial performance test until after the petition is approved or disapproved by the Administrator.

### **The EPA's Determination for TECO's CMS Plan Petition**

The EPA has reviewed the engineering stack test report and other information submitted by TECO. The available information suggests that the combustion turbines will comply with the formaldehyde emission standard at or above a gross load of 105 MW, which is also indicative of lean premix mode of operation. Lean premix mode of operation, based on the EPA's understanding, may be used to indicate compliance status with the formaldehyde emission standard for CT 5 and CT 6 at the Big Bend Station.

Based on supporting and available information, the following CMS plan is acceptable to the EPA:

- i.) To demonstrate compliance with the formaldehyde emission standard, TECO must conduct initial and subsequent periodic compliance demonstration testing in combined cycle mode using procedures of 40 C.F.R. § 63.6120 at high load, defined as 100 percent plus or minus 10 percent.
- ii.) Gross load must be continuously monitored and recorded at least once every 15 minutes during the formaldehyde emission standard compliance demonstration testing, and continuously thereafter, to successfully demonstrate compliance with the formaldehyde emission standard promulgated in 40 C.F.R. § 63.6100 and Table 1 to Subpart YYYYY. An hourly averaged gross load must be determined by using all readings taken at least once every 15 minutes during a normal-operation hour.
- iii.) For the formaldehyde emission standard compliance demonstration testing event, four separate test runs for each testing event must be conducted. Each test run must last at least 1 hour. The four-hour average gross load must be determined by computing the four-hour average using all hourly averaged readings taken during the testing event.

- iv.) Following the formaldehyde emission compliance demonstration testing, the four-hour rolling average gross load must be continuously monitored and recorded to serve as an indication of compliance status with the formaldehyde emission standard. The four-hour rolling average gross load must be determined by computing the four-hour average using all hourly averaged readings for the current hour and preceding three hours of operation.
- v.) During normal operation, the turbines must be operated at or above a gross load of 105 MW, which is indicative of lean premix mode of operation to ensure compliance with this approval.
- vi.) Data collected during periods of startup (e.g., before achieving 105 MW) may not be included in the four-hour rolling averages used to indicate compliance with the formaldehyde emission standard. Startup time must not extend longer than the time specified by the manufacturer's standard operating procedure for startups. Startups must be conducted, to the extent possible, in a manner consistent with ensuring that safety and good air pollution control practices for minimizing emissions are followed.
- vii.) TECO must verify the gross load meter's accuracy once annually according to the manufacturer's recommended procedures and maintain records of the annual verifications for inspection purposes.

The EPA's approval of the TECO's CMS plan is based on information provided by TECO and research conducted by the EPA. Should TECO change the operating conditions of the turbines to an operation which is different than the operating conditions represented in this approval such that formaldehyde emissions increase because of the change, TECO must submit a revised CMS plan petition to address the change(s).

Nothing in this CMS plan approval excludes the EPA from reopening this CMS plan approval to adjust its conditions, if needed, for enhancement of emission standard compliance assurance. If TECO discovers an additional parameter (or additional parameters), which indicates additional parametric monitoring operating limits are necessary to assure compliance with the formaldehyde emission standard, TECO must submit a revised CMS plan petition to the EPA to revise the CMS plan and incorporate the additional operating limit(s) based on the discovery. Finally, if TECO recognizes an opportunity to revise the CMS plan based on other CMS plan approvals issued by the EPA, or new information obtained by TECO which may reduce the burden of tasks necessary for compliance assurance but still effectively assure compliance with the formaldehyde emission standard, TECO may file a petition to the EPA referencing that information to revise this CMS plan.

Please note that our approval does not alter TECO's obligations to meet all other applicable NESHAP, including, but not limited to, the following NESHAP general provisions:

- The requirement to maintain and operate affected facilities and associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions, per 40 C.F.R. § 63.6, and
- The prohibition against concealing emissions which would otherwise constitute a violation of an applicable standard, including the use of gaseous diluents to achieve compliance with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere, per 40 C.F.R. § 63.4.

This CMS petition approval was coordinated with the EPA's Office of Enforcement and Compliance Assurance and Office of Air Quality Planning and Standards. If you have any questions about this CMS petition conditional approval, please contact Henian Zhang at (404) 562-8123, or by email at [zhang.henian@epa.gov](mailto:zhang.henian@epa.gov).

Sincerely,

**CAROLINE** Digitally signed by  
**FREEMAN** CAROLINE FREEMAN  
Date: 2023.07.25  
19:54:03 -04'00'

Caroline Y. Freeman  
Director  
Air and Radiation Division

cc: Robert Scinta, EPA OECA  
Elizabeth Leturgey, EPA OECA  
Melanie King, OAQPS  
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