



REGION 5

CHICAGO, IL 60604

ELECTRONIC MAIL
DELIVERY RECEIPT REQUESTED

Hima Draksharam
Environmental Analyst
TC Energy
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RE: Request for Operating Limits / Monitoring Petition under 40 C.F.R. Part 63, Subpart YYYY,
NESHAP for Stationary Combustion Turbines
TC Energy, Houston, Texas

Dear Hima Draksharam:

The U.S. Environmental Protection Agency (the EPA) has received and reviewed a petition dated April 11, 2024, from TC Energy, doing business as ANR Pipeline Co. (ANR or you). The petition revises and supplements ANR's petition dated June 23, 2022, to which the EPA responded by letter on August 25, 2023. The petition requests the use of %NGP and Inlet Air Temperature (T1) for satisfying operating limits to demonstrate compliance with the formaldehyde emissions limitation for lean premix gas-fired combustion turbines under 40 C.F.R. § 63.6125(b) at ANR's Sulphur Springs Compressor Station in Sulphur Springs, Indiana. In summary, the EPA partially approves and partially denies the petition dated April 11, 2024, to use %NGP and T1 as operating limits under the regulations at 40 C.F.R. Part 63, Subpart YYYY.

Regulatory Background

40 C.F.R. Part 63, Subpart YYYY, National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines (Subpart YYYY) establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emissions from stationary combustion turbines located at major stationary sources of HAP emissions, and requirements to demonstrate initial and continuous compliance with the emission and operating limitations.

40 C.F.R. § 63.6095(a)(3) requires the owner or operator of a new or reconstructed lean premix gas-fired stationary combustion turbine or a diffusion flame gas-fired stationary combustion turbine that started up on or before March 9, 2022, to comply with the emissions limitations and operating limitations of Subpart YYYY no later than March 9, 2022.

40 C.F.R. § 63.6100 requires that each new or reconstructed lean premix gas-fired stationary combustion turbine must comply with the emission limitations and operating limitations in Table 1 and Table 2 of Subpart YYYY. Table 1 provides that each new or reconstructed lean premix gas-fired stationary combustion turbine must comply with an emission limitation of 91 ppbvd formaldehyde or less at 15% O₂, except during turbine startup. The period for turbine startup is subject to the limitations specified at 40 C.F.R. § 63.6175. Table 2 provides that each stationary combustion turbine that is required to comply with the formaldehyde emissions limitation and is not using an oxidation catalyst must maintain any operating limitations approved by the Administrator.

40 C.F.R. § 63.6120(e) states that if the owner or operator's stationary combustion turbine is not equipped with an oxidation catalyst, the owner or operator must petition the Administrator for operating limitations that it will monitor to demonstrate compliance with the formaldehyde emission limitation in Table 1. The owner or operator must measure these operating parameters during the initial performance test and continuously monitor thereafter. 40 C.F.R. § 63.6120(f) lists the specific information that must be included in a petition to the Administrator for approval of additional operating limitations to demonstrate compliance with the formaldehyde emission limitation in Table 1.

40 C.F.R. § 63.6125(b) requires that the owner or operator of a stationary combustion turbine that is required to comply with the formaldehyde emission limitation and is not using an oxidation catalyst must continuously monitor any parameters specified in the approved petition to comply with operating limitations specified in Table 2 and Table 5 of Subpart YYYY.

All terms used in this letter have their ordinary meaning unless such terms are defined in the Clean Air Act, 42 U.S.C. §§ 7401 *et seq.*, or Subpart YYYY, in which case they have the meaning ascribed to them in those authorities.

ANR's Petition

ANR owns and operates one gas-fired lean premix stationary combustion turbine at the facility in Sulphur Springs, Indiana. The turbine was constructed after January 14, 2003, is not equipped with an oxidation catalyst, and is an "affected source" under Subpart YYYY; therefore, the compliance deadline was March 9, 2022.

On April 11, 2024, ANR submitted its petition under 40 C.F.R. § 63.6120(e) for operating limitations it would monitor to demonstrate compliance with the formaldehyde emission limitation. ANR requests that the EPA accept monitoring of Lean Premix Mode (LPM), %NGP, and Inlet Air Temperature (T1) as parameters to meet the Subpart YYYY monitoring requirements for lean premix combustion equipped gas-fired turbines, instead of utilizing an oxidation catalyst.

In its October 11, 2022 letter, ANR claims that LPM "is dependent on" %NGP and T1, but that %NGP is a better parameter for their facility than %NGP. ANR claims that lean premix combustion provides "the mixing necessary to ensure complete combustion of the fuel and minimize emissions of CO and UHCs [unburned hydrocarbons] including formaldehyde."

The EPA's Analysis

The petition includes the required information described in 40 C.F.R. § 63.6120(f)(1) through (5), as summarized below. The EPA makes the following determinations regarding ANR's premixed gas-fired combustion turbine under Subpart YYYY, which is operating without an oxidation catalyst and is subject to emission and operating limitations.

Based on the information provided by ANR, the EPA makes the following findings:

(1) ANR's petition proposes to monitor the identified %NGP and T1 parameters, along with monitoring LPM.

(2) ANR's discussion in its petition of the relationship between %NGP and T1, and formaldehyde emissions, and how limitations on these parameters will serve to limit formaldehyde emissions, is insufficient to support the requested parameters. The fact that a gas turbine is lean premix does not guarantee that it will meet the 91 ppbvd formaldehyde standard. The emissions testing conducted at the Sulphur Springs Compressor Station on August 16, 2022, April 5, 2023, and February 22, 2024, showed formaldehyde emissions below 91 ppbvd within parts of the proposed ranges of %NGP and T1.

(3) In its April 11, 2024 petition and in an email dated April 26, 2024, ANR proposed values for its T1 and %NGP parameters (see table below). However, ANR proposed upper and lower values for the T1 and %NGP parameters that were out of the range of test conditions. ANR has not demonstrated that limiting operations to within the ranges of its proposed values would ensure compliance.

Parameter	T1 (°F)	%NGP
ANR Proposed Limits	-4 - 120	90 - 100%
Test Conditions	53 - 78	97.7 – 98.9%
Approved Limits	48.0 – 90.0	95.0 - 100.0%

The EPA calculated the approved lower T1 limit by:

$$\frac{[\text{Lowest temp tested at}] - ((91 \text{ ppb limit} - 5 \text{ ppb buffer} - [\text{Highest ppb tested at lower temperatures}])}{[\text{Testing Factor}]}, \text{ where Testing Factor} = 3$$

The EPA calculated the approved upper T1 limit by:

$$\frac{[\text{Highest temp tested at}] - ((91 \text{ ppb limit} - 5 \text{ ppb buffer} - [\text{Highest ppb tested at higher temperatures}])}{[\text{Testing Factor}]}, \text{ where Testing Factor} = 3$$

(4) In its petition and an email dated April 11, 2023, ANR described the methods it would use to measure and the instruments it would use to monitor the proposed parameters, as well as the relative accuracy and precision of these methods and instruments. ANR provided the manufacturer documentation requested by the EPA.

(5) In its petition and an email dated April 11, 2023, ANR described the frequency and methods of

instrument recalibration it would use. ANR provided the manufacturer documentation requested by the EPA.

ANR has not demonstrated that limiting operations to within the full ranges of proposed values of the parameters %NGP and T1 at the Sulphur Springs, Indiana facility would ensure compliance with the 91 ppbv formaldehyde emissions standard. The EPA therefore approves the petition for the turbine to operate between a T1 of 48.0-90.0 °F when the turbine is operating between 95.0-100.0% Load, and in LPM. The EPA denies the petition for all other ranges.

This determination letter supersedes all limits previously approved by the EPA in its determination letter dated August 25, 2023.

The EPA would consider updating the ranges if ANR submits a new or revised petition including information showing that the formaldehyde standard is met at wider ranges of operating conditions.

We have coordinated this determination with the Office of Enforcement and Compliance Assurance (OECA) and the Office of Air Quality Planning and Standards (OAQPS). If you have any further questions, please contact Jacob Herbers of my staff at Herbers.Jacob@epa.gov.

Sincerely,

MICHAEL
HARRIS

Digitally signed by
MICHAEL HARRIS
Date: 2024.06.04
11:37:47 -05'00'

Michael D. Harris
Division Director
Enforcement and Compliance Assurance Division

cc: Janusz Johnson, Chief
Air Compliance Branch
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