

**Commonwealth of Kentucky
Division for Air Quality**

STATEMENT OF BASIS / SUMMARY

Title V, Operating
PERMIT ID: V-24-040
Tennessee Gas Pipeline Company, LLC - Compressor Station 107A
260 Double Gate Rd.
Jeffersonville, KY 40337
December 13, 2024
Durga Patil, Permit Review Branch

SOURCE ID: 21-173-00021
AGENCY INTEREST: 44053
ACTIVITY: APE20240001

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SECTION 1 - SOURCE DESCRIPTION

SIC Code and description: 4922, Natural Gas Transmission

Single Source Det. Yes No If Yes, Affiliated Source AI:

Source-wide Limit Yes No If Yes, See Section 4, Table A

28 Source Category Yes No If Yes, Category:

County: Montgomery

Nonattainment Area N/A PM₁₀ PM_{2.5} CO NO_x SO₂ Ozone Lead
If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant Yes No
If yes, for what pollutant(s)?
 PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

PTE* greater than 250 tpy for any criteria air pollutant Yes No
If yes, for what pollutant(s)?
 PM₁₀ PM_{2.5} CO NO_x SO₂ VOC

PTE* greater than 10 tpy for any single hazardous air pollutant (HAP) Yes No
If yes, list which pollutant(s):

PTE* greater than 25 tpy for combined HAP Yes No

*PTE does not include self-imposed emission limitations.

Description of Facility:

Tennessee Gas Pipeline Company, L.L.C. - Station 107A is used to boost transmission pressures by compressing low pressure transmission gas and directing it into a high pressure transmission line. The facility consists of two compressors driven by natural gas fired turbines. The units can operate independently, simultaneously, or not at all. Supporting equipment at the facility includes one natural gas fired emergency generator.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: V-24-040

Activity: APE20240001

Application Received: 6/14/2024

Application Complete: 12/16/2024

Permit Action: Initial Renewal Significant Rev. Minor Rev. Administrative
 Construction/Modification Requested? Yes No NSR Applicable? Yes No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action Yes No

Description of Action:

- Permit Renewal
- Update to 40 CFR 63, Subpart ZZZZ based on update to the regulation.
- Clarification on testing for the turbines has been added to the statement of basis document.

Pollutant	2023 Actual (tpy)	PTE V-19-004/V-24-040 (tpy)
CO	0.0044	38.29
NO _x	0.015	102.69
PT	2.02 E-4	1.46
PM ₁₀	2.02 E-4	1.46
PM _{2.5}	2.02 E-4	1.46
SO ₂	2.0 E-3	14.02
VOC	0.5	20.82
Lead		0
Greenhouse Gases (GHGs)		
Carbon Dioxide	3.79	25,713
Methane	46.43	50.66
Nitrous Oxide	6.75 E-6	0.048
CO ₂ Equivalent (CO ₂ e)		26,994
Hazardous Air Pollutants (HAPs)		
1,3-Butadiene	--	0.00036
Acetaldehyde	--	0.01
Acrolein	--	0.0024
Benzene	--	0.0033
Ethyl Benzene		0.007
Formaldehyde	2.17 E-5	0.16
Methanol	--	0.0012
Naphthalene	--	0.00032
Polynuclear Aromatic Hydrocarbons (PAH)	--	0.00054
Propylene Oxide	--	0.0064
Toluene	--	0.029
Xylenes (Total)	--	0.014
Combined HAPs:	2.17 E-5	0.24

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Units 001 and 002: Natural Gas-Fired Stationary Gas Turbines				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used (lb/mmcsf) and Basis	Compliance Method
NO _x	001: 181 ppmv at 15% O ₂ dry	40 CFR 60.332	547.28, Manf. specs	Initial performance tests
	002: 150 ppmv at 15% O ₂ dry		292.08, Manf. specs	
SO ₂	0.015% by volume	40 CFR 60.333	65.1984, AP-42 3.1-3	Combustion of pipeline quality natural gas

Initial Construction Date: 001: August 1987, and 002: September 1996

Process Description:

Emission Unit:	001	002
Model:	Solar Centaur T-4500	Solar Saturn T-1200
Maximum rated heat input capacity:	37.07 MMBtu/hr	13.02 MMBtu/hr
Maximum rated power:	4390 hp	1200 hp
40 CFR 60, Subpart GG – Y value:	11.94 kJ/W-hr	14.4 kJ/W-hr

Applicable Regulation:

401 KAR 60:005, Section 2(2)(pp), 40 C.F.R. 60.330 through 60.335 (Subpart GG), Standards of Performance for Stationary Gas Turbines. This regulation applies to stationary gas turbines with a heat input at peak load equal to or greater than 10 MMBtu/hr, and that commenced construction, modification, or reconstruction after October 3, 1977. As both EU 001 and 002 exceed the heat input threshold, and were constructed after the applicable date, this regulation is applicable.

State Origin Requirement:

401 KAR 63:020, Potentially hazardous matter or toxic substances. This regulation applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances, provided such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division for Air Quality.

Comments:

Performance tests were conducted on EU 001 on 1/29/1987 and EU 0002 on 3/12/1997. These tests provided values of average NO_x emission concentrations of 114.6 ppmvd and 63.4 ppmvd respectively, corrected to 15% O₂, which are below the calculated NO_x emission limits. No further testing is required as of permit V-24-040. However, compliance with the NO_x is by conducting performance test required by 40 CFR 60.8 which states that within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of such facility, or at such other times specified by this part, and at such other times as may be required by the Administrator under section 114 of the Act, the owner or operator of such facility shall conduct performance test(s) and furnish the Administrator a written report of the results of such performance test(s). As of the renewal, the Division has determined that no further testing is required currently. The requested language in the renewal application has not been made to the permit.

Emission Units 001 and 002: Natural Gas-Fired Stationary Gas Turbines

Pursuant to 40 CFR 60.334(h)(3), the facility may elect to not monitor the total sulfur content of the natural gas fueling the turbine upon providing a fuel tariff sheet per 40 CFR 60.334(h)(3)(i).

As provided in V-24-040 renewal application, the Division concurs that the following regulations do not apply to the above emission units: (no permit shield requested)

401 KAR 60:005, Section 2(2)(ffff), 40 C.F.R. 60.4300 through 60.4420, Table 1 (Subpart KKKK), Standards of Performance for Stationary Combustion Turbines. This regulation applies to combustion turbines with peak load heat input greater than 10 MMBtu/hr constructed after February 18, 2005. EU 001 and 002 were constructed prior to the applicability date and have not been modified or reconstructed after the date; therefore, this regulation does not apply.

401 KAR 60:005 Section 2(2)(hhhh), 40 C.F.R. 60.5360 through 60.5430, Tables 1 through 3 (Subpart OOOO), Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced after August 23, 2011, and On or Before September 18, 2015. This regulation applies to specific sources within the oil and gas industry as listed in 40 CFR 60.5365(a) through (g), that is located within the Crude Oil and Natural Gas source category, as defined in 40 CFR 60.5430 for which construction, modification, or reconstruction was implemented after August 23, 2011, and on or before September 18, 2015. Since the units at this facility were all installed prior to August 23, 2011, and has not been modified or reconstructed since that date, NSPS OOO does not apply to Station 107A.

401 KAR 60:005 Section 2(2)(iiii), 40 C.F.R. 60.5360a through 60.5432a, Tables 1 through 3 (Subpart OOOOa), Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification or Reconstruction Commenced After September 18, 2015. This regulation applies to specific sources within the oil and gas industry listed in 40 CFR 60.5365a(a) through (j), that is located within the Crude Oil and Natural Gas Production source category, as defined in 40 CFR 60.5430a, for which the permittee commenced construction, modification, or reconstruction after September 18, 2015 and on or before December 6, 2022. Though the facility does meet the definition of a compressor station under NSPS OOOOa, there are no units that have been constructed, modified, or reconstructed since September 18, 2015, and so 40 CFR 60, Subpart OOOOa does not apply to Station 107A.

40 CFR 60, Subpart OOOOb – Standards of Performance for Crude Oil and Natural Gas Facilities for Which Construction, Modification, or Reconstruction Commenced After December 6, 2022. This regulation applies to specific sources within the oil and gas industry listed in 40 CFR 60.5365b(a) through (i), that is located within the Crude Oil and Natural Gas source category, as defined in 40 CFR 60.5430b, for which the permittee commenced construction, modification, or reconstruction after December 6, 2022. Though the facility does meet the definition of a compressor station under NSPS OOOOb, there are no units that have been constructed, modified, or reconstructed December 6, 2022 and so 40 CFR 60, Subpart OOOOb does not apply to Station 107A.

401 KAR 63:002, Section 2(4)(dddd), 40 C.F.R. 63.6080 through 63.6175, Tables 1 through 7 (Subpart YYYY), National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines. This regulation is applicable to stationary combustion turbines located at major sources of HAP emissions. The facility is an area source of HAPs; therefore, this regulation does not apply.

Emission Unit 003: Natural Gas-Fired Emergency Generator

Initial Construction Date: January 1987

Process Description:

Emission Unit: 003
Model: Caterpillar 3306
Kind of Unit: 4-stroke rich burn, spark ignition
Power output: 130 bhp
Maximum rated fuel input capacity: 1.59 MMBtu/hr

Applicable Regulation:

401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. This regulation applies to EU 003, as the engine is located at an area source of HAPs, and was constructed before June 12, 2006, pursuant to 40 CFR 63.6590(a)(1)(iii).

Comments:

No emission limitations apply to EU 003; however, work practice standards apply. Pursuant to 40 CFR 63, Subpart ZZZZ, Table 2d, item 5, these include:

- Change oil and filter every 500 hours of operation or within 1 year + 30 days of the previous change, whichever comes first;
- Inspect spark plugs every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and
- Inspect all hoses and belts every 500 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary, and
- Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.

As provided in V-24-040 renewal application, the Division concurs that the following regulation does not apply to the above emission unit:

401 KAR 60:005, Section 2(2)(eeee), 40 C.F.R. 60.4230 through 60.4248, Tables 1 through 4 (Subpart JJJJ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. This regulation applies to stationary spark ignition combustion emergency engines manufactured on or after January 1, 2009, pursuant to 40 CFR 60.4230(a)(4)(iv). Because EU 003 was manufactured prior to the applicability date, this regulation does not apply.

Testing Requirements:

Initial compliance testing for NO_x emissions was conducted on 1/29/1987 for EU 001 and on 3/12/1997 for EU 002. The test results have been provided as part of the initial Title V application and filed under APE20130002.

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

N/A

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 60:005, Section 2(2)(pp), 40 C.F.R. 60.330 through 60.335 (Subpart GG), Standards of Performance for Stationary Gas Turbines.	001, 002
401 KAR 63:002, Section 2(4)(eeee), 40 C.F.R. 63.6580 through 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.	003
401 KAR 63:020, Potentially hazardous matter or toxic substances.	001, 002

Table C - Summary of Precluded Regulations:

N/A

Table D - Summary of Non Applicable Regulations:

N/A

Air Toxic Analysis

401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances

The Division for Air Quality (Division) has performed SCREEN View on February 14, 2019, of potentially hazardous matter or toxic substances (1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Methanol, Naphthalene, Propylene Oxide, Toluene, Xylene) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

No additional modeling was performed as part of renewal permit V-24-040 as there is no change in emissions, however the Division did compare the SCREEN view results with November RSL values of the pollutants and confirmed that the facility is in compliance with 401 KAR 63:020 for all pollutants, including formaldehyde for which the RSL value was revised in November.

Single Source Determination

N/A

SECTION 5 - PERMITTING HISTORY

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
S-05-074	Initial	APE2001001	2/15/2006	4/20/2006	Initial Permit	N/A
S-05-074 R1	Admin Amend	APE20120001	8/13/2012	8/28/2012	Admin Amend – Name Change	N/A
V-13-038	Initial	APE20130002	10/18/2013	12/22/2014	Initial Title V Permit	N/A
V-19-004	Renewal	APE20190001	2/12/2019	12/21/2019	Renewal	N/A

SECTION 6 – PERMIT APPLICATION HISTORY:

NONE

APPENDIX A – ABBREVIATIONS AND ACRONYMS

- AAQS – Ambient Air Quality Standards
- BACT – Best Available Control Technology
- Btu – British thermal unit
- CAM – Compliance Assurance Monitoring
- CO – Carbon Monoxide
- Division – Kentucky Division for Air Quality
- ESP – Electrostatic Precipitator
- GHG – Greenhouse Gas
- HAP – Hazardous Air Pollutant
- HF – Hydrogen Fluoride (Gaseous)
- MSDS – Material Safety Data Sheets
- mmHg – Millimeter of mercury column height
- NAAQS – National Ambient Air Quality Standards
- NESHAP – National Emissions Standards for Hazardous Air Pollutants
- NO_x – Nitrogen Oxides
- NSR – New Source Review
- PM – Particulate Matter
- PM₁₀ – Particulate Matter equal to or smaller than 10 micrometers
- PM_{2.5} – Particulate Matter equal to or smaller than 2.5 micrometers
- PSD – Prevention of Significant Deterioration
- PTE – Potential to Emit
- SO₂ – Sulfur Dioxide
- TF – Total Fluoride (Particulate & Gaseous)
- VOC – Volatile Organic Compounds