

Commonwealth of Kentucky
Division for Air Quality
STATEMENT OF BASIS / SUMMARY

Conditional Major, Operating

Permit: F-26-044
Texas Gas Transmission, LLC - Graham Lake Compressor Station
66 Locketown Road
Graham, KY 42344

October 1, 2026
Colby Freeman, Reviewer

SOURCE ID:	21-177-00074
AGENCY INTEREST:	44343
ACTIVITY:	APE20260001

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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: Muhlenberg

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:

Texas Gas Transmission, LLC – Graham Lake Compressor Station (Graham Lake) is located in Greenville, KY in Muhlenberg County. Graham Lake receives natural gas via pipeline from upstream sources, compresses it using reciprocating internal combustion engines (RICE) and then transmits it into an underground storage field. Natural gas is later withdrawn from the underground storage field and routed through a glycol dehydration unit and associated reboiler to remove water prior to the gas being compressed and transmitted via pipeline to downstream compressor stations. The facility consists of two (2) natural gas-fired four-stroke rich burn (4SRB) RICE less than 500 hp each and a glycol dehydrator with flare. Auxiliary equipment/activities include an emergency 140 hp natural gas-fired 4SRB RICE, a 0.28 mmBtu/hr reboiler associated with the dehydration unit, fugitive equipment leaks, and natural gas venting.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-26-044

Activities: APE20260001

Received: 7/10/2026

Application Complete Date(s): 8/5/2026

Permit Action: ☐ Initial ☒ Renewal ☐ Significant Rev ☐ Minor Rev ☐ Administrative

Construction/Modification Requested? ☐ Yes ☒ No

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

Description of Action:

- Facility requested renewal of their Conditional Major permit. No changes were requested in the application or any other actions since the previous renewal.

F-26-044 Emission Summary		
Pollutant	2025 Actual (tpy) ³	PTE F-26-044 (tpy)
CO	0	< 92 ¹
NO _x	0	49.73 ¹
PT	0	0.63 ¹
PM ₁₀	0	0.63 ¹
PM _{2.5}	0	0.63 ¹
SO ₂	0	0.02 ¹
VOC	0.02	2.15 ^{1, 2}
Lead	0	0.000003
Greenhouse Gases (GHGs)		
Carbon Dioxide	0.14	4,221.3
Methane	10.66	31.87 ²
Nitrous Oxide	0	0.008
CO ₂ Equivalent (CO ₂ e)	298.62	5,020.3 ²
Hazardous Air Pollutants (HAPs)		
Formaldehyde	0	0.625 ¹
Benzene	0	0.26 ²
Combined HAPs:	0	1.062 ^{1, 2}

¹ Emissions are controlled by Federally Enforceable Operating Limitation on hours of operation.

² Emissions are controlled by Federally Enforceable Operating Limitation requiring use of a ground flare.

³ Facility reported no emissions (except fugitive component emissions) for 2025 based on zero operating hours.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Units 001, 003 (RC01, RC02) 4SRB Natural Gas Fired Compressor Engines #1, #2

Initial Construction Date: 12/1/1964

Process Description:

Emission Unit 001 (RC01) 4SRB Natural Gas Fired Compressor Engine #1

Model: Superior G-825
Rated Horsepower: 495 hp
Maximum Operating Rate: 0.0049 mmscf/hr
Fuel: Natural Gas
Controls: None

Emission Unit 003 (RC02) 4SRB Natural Gas Fired Compressor Engine #2

Model: Superior G-825
Rated Horsepower: 495 hp
Maximum Operating Rate: 0.0049 mmscf/hr
Fuel: Natural Gas
Controls: None

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* applies to stationary RICE located at major and area sources of hazardous air pollutants (HAP) emissions and pursuant to 40 CFR 63.6590(a)(1)(iii), a stationary RICE located at an area source of HAP emissions that commences construction before June 12, 2006 is considered an existing stationary RICE for the purposes of Subpart ZZZZ. Emission units 001 and 003 (RC01 and RC02) are existing engines pursuant to 40 CFR 63.6590(a)(1)(iii), and are therefore subject to 40 CFR 63, Subpart ZZZZ for existing non-emergency, non-black start 4SRB stationary RICE less than 500 hp.

Comments:

Pursuant to 401 KAR 52:030, Section 10, and to preclude the applicability of 401 KAR 52:020, the permittee shall limit the operation of emission units 001 and 003 (RC01 and RC02) to 6,000 hr/yr each and compliance shall be shown by monitoring or calculating; and recording the hours of operation of each of emission units 001 and 003 (RC01 and RC02) on a monthly and twelve (12) month rolling basis. Based on the application from the source, and in conjunction with the hourly limitations on the engines; a source-wide limitation of 92 tpy of CO has been added to Section D of the permit as the source-wide PTE for CO is 91.7 tpy. Division approved emission factors for NO_x and CO are based on test data submitted on 10/12/2015.

Emission Unit 005 (AX01) 4SRB Natural Gas Fired Emergency Generator Engine

Initial Construction Date: 10/1/82

Process Description:

Emission Unit 005 (AX01) 4SRB Natural Gas Fired Emergency Generator Engine

Model: Waukesha 145GK

Rated Horsepower: 140 hp

Maximum Operating Rate: 0.00165 mmscf/hr

Fuel: Natural Gas

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* applies to stationary RICE located at major and area sources of hazardous air pollutants (HAP) emissions and pursuant to 40 CFR 63.6590(a)(1)(iii), a stationary RICE located at an area source of HAP emissions that commences construction before June 12, 2006 is considered an existing stationary RICE for the purposes of Subpart ZZZZ. Emission unit 005 (AX01) is an existing engine pursuant to 40 CFR 63.6590(a)(1)(iii), and is therefore subject to 40 CFR 63, Subpart ZZZZ for an existing emergency stationary SI RICE.

Comments:

Emission factors for criteria pollutants and HAPs are from AP-42 Table 3.2-3. GHG emission factors are calculated based on 40 CFR 98, Subpart C.

Emission Unit 002 (OX02) Glycol Dehydration System				
Pollutant	Emission Limit or Standard	Regulatory Basis for Emission Limit or Standard	Emission Factor Used and Basis	Compliance Method
PM	No more than 20% opacity for more than 3 min in any 1 day.	401 KAR 63:015, Section 3	NA	Pilot flame shall be present at all times whenever OX02(01) is in operation. Monthly observations and Method 22 test if emissions are observed.
Initial Construction Date: TEG Dehydrator – 12/1/1964; Ground Flare – 5/19/2011				
Process Description:				
Emission Unit 002 (OX02)		Glycol Dehydration System		
(OX02(01))		Triethylene Glycol (TEG) Dehydrator		
Maximum Capacity:		25 mmscf/day		
Maximum Operating Rate:		1.04 mmscf/hr		
Controls:		OX02(02) Ground Flare (Air-Assisted)		
Control Efficiency:		95%		
(OX02(02))		Ground Flare (Air-Assisted)		
Model:		Zeeco EGF 3.5X20		
Maximum Capacity:		1 mmBtu/hr		
Maximum Operating Rate:		0.00098 mmscf/hr		
Applicable Regulation:				
401 KAR 63:015, <i>Flares</i> , applies to flares as defined in 401 KAR 63:015, Section 2.(2) constructed after April 9, 1972.				
State-Origin Requirements:				
401 KAR 63:020, <i>Potentially hazardous matter or toxic substances</i> applies to each affected facility which emits or may emit potentially hazardous matter or toxic substances, provided that such emissions are not elsewhere subject to the provisions of the administrative regulations of the Division. The HAP emissions from either the TEG Dehydrator (OX02(01)) or ground flare (OX02(02)) are not elsewhere subject to the provisions of the administrative regulations of the Division, therefore the requirements of 401 KAR 63:020 are applicable to emission unit 002.				
Comments:				
401 KAR 60:005, Section 2(2)(ssss), 40 C.F.R. 60.5360 through 60.5430, Tables 1 through 3 (Subpart OOOO), <i>Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015</i> , establishes emission standards and compliance schedules for the control of VOC and GHG emissions from affected facilities in the crude oil and natural gas production source category. The Graham Lake Compressor Station was constructed before the applicability date of August 23, 2011 and is not subject to 40 CFR 60, Subpart OOOO or the subsequent regulations (Subparts OOOOa or OOOOb).				

Emission Unit 002 (OX02) Glycol Dehydration System

401 KAR 63:002, Section 2(4)(x), 40 C.F.R. 63.760 through 63.777, Appendix (**Subpart HH**), *National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities*, applies to a permittee of the emission points, specified in 40 CFR 63.760(b) that are located at oil and natural gas production facilities that meet the specified criteria in 40 CFR 63.760(a)(1) and either 40 CFR 63.760(a)(2) or (a)(3). Pursuant to 40 CFR 63.760(a)(2) and (a)(3), those facilities that process, upgrade, or store hydrocarbon liquids; and that process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user are subject to 40 CFR 63, Subpart HH. The Graham Lake Compressor Station is located in the transmission and storage source category, therefore it is not subject to 40 CFR 63, Subpart HH.

401 KAR 63:002, Section 2(4)(tt), 40 C.F.R. 63.1270 through 63.1287, Tables 1 and 2 (Subpart HHH), *National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities*, applies to facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of HAP. The facility is an area source of HAP, therefore 40 CFR 63, Subpart HHH is not applicable.

Emission factors for the TEG Dehydrator are based a GRI-GLYCalc report run on October 17, 2021.

The associated reboiler to the TEG Dehydrator has a capacity of less than 1 mmBtu/hr and natural gas combustion emissions qualify it as being an insignificant activity in the permit. 401 KAR 59:010 and 401 KAR 63:020 are listed as generally applicable regulations.

Upon review of the applications provided to the Division and the stack test performed on the ground flare, the description has been updated to show that the flare is air assisted. The stack test report under CMN20120001 identifies the flare as an 'air-assist' flare.

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)

Testing Requirements/Results

Emission Unit(s)	Control Device	Parameter	Regulatory Basis	Frequency	Test Method	Permit Limit	Test Result	Throughput/ Operating Parameter(s) Established During Test	Activity Graybar	Date of last Compliance Testing
002	Ground Flare	Heating Value	40 CFR 60.18(c)(3)(ii)	Initial	ASTM D1946	>300 Btu/scf	750 Btu/scf	NA	CMN20120001	1/17/2012
		Stack Velocity	40 CFR 60.18(f)(6)	Initial	Method 2	Vmax: 93.5 ft/s	27 ft/s			

Footnotes:

Though the ground flare is control for the TEG Dehydrator, the test was for flare design compliance only.

Velocities were not taken at the flare tip, as specified in 40 CFR 60.18. From the report, the flare tip area is 0.077 square feet, and correcting the flow measurements to this outlet, gives 27 ft./sec, rather than the reported 1 ft/sec. Opacities taken during the tests averaged zero.

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
92 tpy of CO emissions	401 KAR 52:030 , <i>Federally-enforceable permits for nonmajor sources</i> to preclude 401 KAR 52:020	Source-wide

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 63:015 , <i>Flares</i> .	002
401 KAR 63:020 , <i>Potentially hazardous matter or toxic substances</i>	002
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), <i>National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines</i> .	001, 003, 005

Table C - Summary of Precluded Regulations:

None

Table D - Summary of Non Applicable Regulations:

None

Air Toxic Analysis

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

The Division for Air Quality (Division) has performed SCREEN View on October 1, 2026 of potentially hazardous matter or toxic substances (Benzene, N-Hexane, Toluene, Xylenes, n-Pentane, Methyl Cyclohexane) 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.

Single Source Determination

N/A

SECTION 5 – PERMITTING HISTORY

Permit	Permit Type	Activity #	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
G-04-001	General Permit	APE20040001	11/8/2004	5/27/2005	General Permit	NA
G-04-001 R1	General Revision		6/26/2006	1/23/2007	Permit Revision	NA
G-09-002	Renewal	APE20090001	2/11/2010	10/4/2010	Renewal Permit	NA
V-15-034	Renewal	APE20150001	6/2/2015	3/28/2016	Title V Renewal	NA
F-21-030	Initial	APE20200001	10/19/2021	1/17/2022	Initial Conditional Major Permit	NA

SECTION 6 – PERMIT APPLICATION HISTORY
None

APPENDIX A – ABBREVIATIONS AND ACRONYMS

4SRB	– 4 Stroke Rich Burn
CAM	– Compliance Assurance Monitoring
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
4SRB	– Four-Stroke Rich Burn
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
MSDS	– Material Safety Data Sheets
mmBtu	– Million British thermal unit
NO _x	– Nitrogen Oxides
RICE	– Reciprocating Internal Combustion Engine
SI	– Spark Ignition
TEG	– Triethylene Glycol
PM	– Particulate Matter
PM ₁₀	– 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
RICE	– Reciprocating Internal Combustion Engines
SO ₂	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds