Commonwealth of Kentucky
Division for Air Quality

STATEMENT OF BASIS / SUMMARY

Conditional Major, Operating
Permit: F-26-007

Right Beaver Compressor Station
2505 KY 7
Dema, KY 41859

March 23, 2026
Dakota Ross, Reviewer

SOURCE ID:	21-119-00030
AGENCY INTEREST:	44061
ACTIVITY:	APE20260001

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SECTION 1 – SOURCE DESCRIPTION

SIC Code and description: 1311, Crude Petroleum and Natural Gas

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: Knott
Nonattainment Area ☒ N/A ☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ Ozone ☐ Lead
If yes, list Classification:

PTE* greater than 100 tpy for any criteria air pollutant ☒ Yes ☐ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☒ VOC

PTE* greater than 250 tpy for any criteria air pollutant ☐ Yes ☒ No
If yes, for what pollutant(s)?
☐ PM_{10} ☐ $PM_{2.5}$ ☐ CO ☐ NO_X ☐ SO_2 ☐ VOC

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

PTE* greater than 25 tpy for combined HAP ☒ Yes ☐ No

*PTE does not include self-imposed emission limitations.

Description of Facility:
Natural gas enters the Right Beaver Compressor Station via a distribution pipeline system before the point of custody transfer and is first compressed using two electric compressors and one (1) natural gas-fired compressor engine. The compressed natural gas stream is then filtered and processed through a TEG dehydration unit. The dehydration unit removes water from the gas stream with an absorption process using triethylene glycol. The TEG is regenerated using a distillation step using a natural gas-fired reboiler and recirculated back through the process. Liquid fractions removed from the natural gas are stored in a storage tank. The natural gas stream from the dehydration unit is then reintroduced into the pipeline to be transported further along the distribution system. The emissions from the TEG dehydration unit are routed to an enclosed flare with a control efficiency of 95% for VOC and HAP. The facility is also equipped with a diesel-fired emergency generator, small insignificant storage tanks, and insignificant fugitive pipeline equipment.

SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM

Permit Number: F-26-007 Activities: APE20250001

Received: October 1, 2025 Application Complete Date(s): February 19, 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:
On October 1, 2025, the Division received an application for renewal of the Conditional Major operating permit for the Right Beaver Compressor Station in Knott County Kentucky. There have been no changes in equipment or applicable regulations at the facility. Additionally, Diversified requested that compliance with the benzene exemption and determination of actual average benzene emissions [40 CFR 63.772(b)(2)(i)] allow for the use of Promax Process Simulation Software in addition to the currently used GRI-GLYCalc Software. EPA allows for the use of Promax as an alternative as published as ALT-147.

F-26-007Emission Summary		
Pollutant	2024 Actual (tpy)[1]	F-26-007 PTE[2] (tpy)
CO	26.78	31.90
NO_X	9.04	33.44
PT	2.12	2.62
PM_{10}	2.12	2.62
$PM_{2.5}$	2.12	2.62
SO_2	0.03	0.15
VOC	40.95	175.53/53.46[3]
Greenhouse Gases (GHGs)		
Carbon Dioxide	5,561	6,818
Methane	62.89	2.45/1.08[3]
Nitrous Oxide	0.020	0.013
CO_2 Equivalent (CO_2e)	7,327	6,890/6,852[3]
Hazardous Air Pollutants (HAPs)		
Benzene	0.121	3.496/0.268[3]
Ethylbenzene	0.010	5.664/0.289[3]
Formaldehyde	2.359	2.786
Hexane, N-Hexane	0.064	2.307/0.155[3]
Toluene	0.089	11.846/0.639[3]
Xylene	0.149	36.61/1.844[3]
Combined HAPs:	3.451	63.622/6.891[3]

[1] Actual emissions are based on a natural gas heat content of 1,377.5 Btu/scf. (8/16/23 Gas Analysis)
[2] PTE emissions are based on a natural gas heat content of 1,386.7 Btu/scf (9/6/19 Gas Analysis)
[3] Uncontrolled/Controlled Emissions

SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS

Emission Unit EP003 (EP-03) 2 Stroke Lean Burn (2SLB) Reciprocating Compressor Engine #3

Initial Construction Date: 01/1993

Process Description:

Model	Cooper Bessemer GMVH-8C2
Primary Fuel:	Natural Gas
Power Output:	1,600 hp
Max Operating Rate:	0.0083 mmscf/hr @ 1386.71 Btu/scf

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 HAP. 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 40 CFR 63, Subpart ZZZZ. Therefore 40 CFR 63, Subpart ZZZZ is applicable to EP003.

Comments:

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,* applies to stationary RICE that commence construction after June 12, 2006. Therefore 40 CFR 60, Subpart JJJJ does not apply because the 1,600 hp 2SLB SI RICE was constructed in 1993.

A natural gas analysis conducted on 9/6/2019 produced a heat content of 1,386.71 Btu/scf. This has been used to calculate the design rate in mmscf/hr and mmscf/yr and the emission factors in lb/mmscf. Subsequent gas analyses have resulted in varied heat contents, however the 9/6/2019 analysis showed the highest heat content and is being retained for PTE calculations. The specific fuel consumption in Btu/hp-hr, horsepower, and emission factors are from the manufacturer and AP-42 chapter 3, Table 3.2-1.

Emission Unit EP004 (EP-04) TulPro Glycol System				
Pollutant	**Emission Limit or Standard**	**Regulatory Basis for Emission Limit or Standard**	**Emission Factor Used and Basis**	**Compliance Method**
PM	0.56 lb/mmBtu @ EP-04(2)	401 KAR 59:015, Section 4(1)(a)	10.33 lb/mmscf (AP-42 Table 1.4-1)	Assumed while only burning natural gas
	20% opacity @ EP-04(02)	401 KAR 59:015, Section 4(2)	NA	
	≤ 20% opacity for more than 3 min in any 1 day. @ EP-04(03)	401 KAR 63:015, Section 3	N/A	Monthly qualitative visual observations of the flare. If emissions are observed, Method 9, or immediate corrective action resulting in no visible emissions
SO_2	3 lb/mmBtu @ EP-04(02)	401 KAR 59:015, Section 5(1)(a)	0.82 lb/mmscf (AP-42 Table 1.4-1)	Assumed while only burning natural gas

Initial Construction 01/1993

Process Description:

(EP-04(01)) Natural Gas Triethylene Glycol (TEG) Dehydrator

Maximum Operating Rate: 25 mmscf/day (2,322.56 thousand cubic meters/day)
Control Device: Flare (EP-04(03)), 95% Control Efficiency

(EP-04(02)) Reboiler

Primary Fuel: Natural Gas
Reboiler Capacity: 1.25 mmBtu/hr
Control Device: None

(EP-04(03)) Flare

Flare Pilot Capacity: 0.407 mmBtu/hr

Applicable Regulation:

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)(1) and (a)(3) a facility shall be a major or area source of hazardous air pollutants as defined in 40 CFR 63.761; and shall 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. Furthermore, pursuant to 40 CFR 63.760(b)(2), for area sources, the affected source includes each TEG dehydration unit located at a facility that meets the criteria specified in 40 CFR 63.760(a). The Right Beaver Compressor Station has taken federally enforceable limits to be an area source for HAP emissions. Additionally, the facility processes natural gas before delivery to the final end user takes place. Therefore, the TEG dehydrator (EP-04(01)) at the facility is subject to the requirements of 40 CFR 63, Subpart HH.

401 KAR 59:015, *New Indirect Heat Exchangers*, applies to indirect heat exchangers having a heat input capacity greater than one (1) mmBtu/hr built after April 9, 1972 for an affected facility with a capacity of 250 mmBtu/hr heat input or less. The reboiler (EP-04(02) associated with the TEG dehydrator (EP-04(01)

Emission Unit EP004 (EP-04) TulPro Glycol System

at the facility has a heat input of 1.25 mmBtu/hr. Therefore 401 KAR 59:015 is applicable.

401 KAR 63:015, *Flares* applies to each flare, meaning a device at the tip of a stack or other opening used for the disposal of waste gas streams by combustion commenced after April 9, 1972. The flare at the facility (EP-04(03)) was installed in 1993 and is used for control of waste gas streams from the TEG dehydrator (EP-04(01)). Therefore the requirements of 401 KAR 63:015 are applicable.

State-Origin Requirements:
401 KAR 63:020, *Potentially hazardous matter or toxic substances*, 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 the reboiler (EP-04(02)) are not elsewhere subject to the provisions of the administrative regulations of the Division, therefore the requirements of 401 KAR 63:020 apply to the HAP emissions from the reboiler.

Comments:
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 so 40 CFR 63, Subpart HHH does not apply.

401 KAR 60:005, Section 2(2)(ooo), 40 C.F.R. 60.640 through 60.648 (**Subpart LLL**), Standards of Performance for SO_2 Emissions from Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011 applies to each sweetening unit, and each sweetening unit followed by a sulfur recovery unit. There are no sweetening units at the Right Beaver Compressor Station, therefore 40 CFR 60, Subpart LLL does not apply.

401 KAR 60:005, Section 2(2)(nnn), 40 C.F.R. 60.630 through 60.636 (**Subpart KKK**), Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011 applies to affected facilities in onshore natural gas processing plants. Pursuant to 40 CFR 60.630(e), a dehydration unit, is covered by 40 CFR 60, Subpart KKK if it is located at an onshore natural gas processing plant. The TEG dehydration unit at the facility is not at an onshore natural gas processing plant. Therefore, 40 CFR 60, Subpart KKK 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 Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015 establishes emission standards and compliance schedules for the control of VOC and SO_2 emissions from affected facilities in the crude oil and natural gas production source category. The Right Beaver Compressor Station was constructed before the applicability date of August 23, 2011 and is not subject to 40 CFR 60, Subpart OOOO.

To preclude the applicability of 401 KAR 52:020, emissions from the TEG Dehydration Unit (EP-04(01)) shall be vented to the flare (EP-04(03)) at all times. [401 KAR 52:030, Section, 10]

Refer to **Table A - Group Requirements** of **Section 4 – Source Information and Requirements.**

Emission Unit EP004 (EP-04) TulPro Glycol System

The permittee of an area source is exempt from the requirements of 40 CFR 63.764(d) if the criteria listed below are met: [40 CFR 63.764(e)(1)]

i. The actual annual average flowrate of natural gas to the glycol dehydration unit is less than 85 thousand standard cubic meters per day, as determined by the procedures specified in 40 CFR 63.772(b)(1); or [40 CFR 63.764(e)(1)(i)]
ii. The actual average emissions of benzene from the glycol dehydration unit process vent to the atmosphere are less than 0.90 megagram per year (1.0 tpy), as determined by the procedures specified in 40 CFR 63.772(b)(2). [40 CFR 63.764(e)(1)(ii)]

The permittee of a glycol dehydration unit that meets the exemption criteria in 40 CFR 63.764(e)(1)(i) or (ii) shall maintain the records specified in 40 CFR 63.774(d)(1)(i) or d(1)(ii), as appropriate for that glycol dehydration unit as follows: [40 CFR 63.774(d)(1)]

i. The actual annual average natural gas throughput (in terms of natural gas flowrate to the glycol dehydration unit per day) as determined in accordance with 40 CFR 63.772(b)(1), or [40 CFR 63.774(d)(1)(i)]
ii. The actual average benzene emissions (in terms of benzene emissions per year) as determined in accordance with 40 CFR 63.772(b)(2). [40 CFR 63.774(d)(1)(ii)]
    (1) Pursuant to 40 CFR 63.772(b)(2)(i), the permittee shall determine actual average benzene emissions using the model GRI-GLYCalc™ Version 3.0 or higher, and the procedures presented in the associated GRI-GLYCalc™ Technical Reference Manual. Inputs to the model shall be representative of actual operating conditions of the dehydration unit and may be determined using the procedures documented in the Gas Research Institute (GRI) report entitled "Atmospheric Rich/Lean Method for Determining Glycol Dehydrator Emissions" (GRI–95/0368.1). [40 CFR 63.772(b)(2)(i)]
    (2) As an alternative to GRI-GLYCalcTM Version 3.0 or higher, the permittee may use ALT-147 method located at https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods (approval date January 19, 2023) and subject to the caveats listed in that method. [401 KAR 52:030, Section 10]

An updated GRI-GLYCalc™ report was run by the facility on September 6, 2019 and was submitted with the renewal application. The natural gas heat content was found to be 1,386.71 Btu/scf. This was used to calculate and update the hourly design rates of EP-04(01), EP-04(02), and EP-04(03). The emissions from the GRI-GLYCalc™ report were used to calculate the emission factors for the TEG dehydrator and AP-42, Table 1.4-1, Table 1.4-2, and 40 CFR 98, Subpart C, Tables C1 and C2 were used for the emission factors for the reboiler and flare pilot flame. The emission factors were then multiplied by the ratio of 1,3886.71/1,080 or 1.3595 to account for the different natural gas heat contents.

Uncontrolled benzene emissions from the glycol dehydration unit process vent at the facility would be 3.08 Mg/year (3.40 tpy) without the flare. However, with the flare, benzene emissions are 0.15 Mg/year (0.17 tpy). Therefore, requirement to send emissions to the flare allows for the exemption listed in 40 CFR 63.764(e)(1)(ii).

Emission Unit EP005 (EP-05) Compression Ignition (CI) RICE Emergency Generator

Initial Construction Date: 01/2005

Process Description:

Model	Cummins 5699460
Primary Fuel:	Diesel
Power Output:	235 hp
Max Operating Rate:	0.012 1000gal/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,* applies to stationary RICE located at major and area sources of HAP. 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 40 CFR 63, Subpart ZZZZ. Therefore 40 CFR 63, Subpart ZZZZ is applicable EP005.

Comments:

401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 to 60.4219, Tables 1 to 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines applies to stationary RICE that commence construction after June 12, 2006. Therefore 40 CFR 60, Subpart IIII does not apply because the 235 hp CI RICE was constructed in 2005.

The hourly design rate and emission factors have been recalculated using the engine power (hp), specific fuel consumption (Btu/hp-hr), and heat content of diesel (Btu/gallon) as provided in the renewal application received by the Division on November 19, 2009.

Testing Requirements\Results

N/A.

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS

Table A - Group Requirements:

Emission and Operating Limit	Regulation	Emission Unit
90 tpy of VOC emissions	401 KAR 52:030, Federally-enforceable permits for nonmajor sources to preclude	Source-wide
9.0 tpy of any single HAP emissions	To preclude major source status for HAP	Source-wide
22.5 tpy of combined HAP emissions	To preclude major source status for HAP	Source-wide

Table B - Summary of Applicable Regulations:

Applicable Regulations	Emission Unit
401 KAR 59:015 – New Indirect Heat Exchangers	EP004 [EP-04(02)]
401 KAR 63:020, Potentially hazardous matter or toxic substances.	EP004 [EP-04(02)]
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	EP004 [EP-04(01)]
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	EP003, EP005
401 KAR 63:015 – Flares	EP004 [EP-04(03)]

Table C - Summary of Precluded Regulations:

NA

Table D - Summary of Non Applicable Regulations:

NA

SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS (CONTINUED)

Table D - Summary of Non Applicable Regulations (Continued):

Non Applicable Regulations	Emission Unit
401 KAR 60:005, Section 2(2)(dddd), 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	EP005
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	EP003
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 Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015	EP004
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	EP004

Air Toxic Analysis

401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances
The Division for Air Quality (Division) has performed SCREEN View on March 23, 2026 of potentially hazardous matter or toxic substances (Benzene, Ethyl Benzene, Hexane, Toluene, Xylenes) 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	Renewal	APE20004001	11/08/2004	05/27/2005	Renewal	NA
G-04-001 R1	Renewal	APE20040001	06/26/2006	11/10/2006	Comments on Draft Permit	N/A
G-04-001 R2	Admin Amend	APE20090001	05/22/2009	6/1/2009	Name Change	NA
F-10-012	Initial	APE20090002	3/12/2010	6/16/2010	Renewal/Initial Federally Enforceable State Operating Permit	NA
F-15-032	Renewal	APE20140001	6/15/2015	1/18/2016	Renewal	NA
F-15-032 R1	Admin Amend	APE20180002	10/1/2018	10/3/2018	Ownership change	NA
F-15-032 R2	Admin Amend	APE20200001	3/25/2020	5/13/2020	Name change	NA
F-20-041	Renewal	APE20200002	12/18/2020	5/23/2021	Renewal with changes to Insignificant Activities.	NA

SECTION 6 – PERMIT APPLICATION HISTORY

NA

APPENDIX A – ABBREVIATIONS AND ACRONYMS

Btu – British thermal unit
CI – Compression Ignition
CO – Carbon Monoxide
Division – Kentucky Division for Air Quality
GHG – Greenhouse Gas
HAP – Hazardous Air Pollutant
mmBtu – Million British thermal units
mmscf – Million standard cubic feet
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NO_x – Nitrogen Oxides
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
SI – Spark Ignition
SO_2 – Sulfur Dioxide
TEG – Triethylene glycol
VOC – Volatile Organic Compounds