Conditional Major Operating Permit Renewal / Significant Permit Revision Application

Myra Compressor Station

Permit ID: F-20-020

Diversified Midstream LLC

101 McQuiston Dr., Jackson Center, PA 16133

Prepared by:

SLR International Corporation

West Virginia (WV):

SLR Project No.: 116.021344.00001

Client Reference No: AI # 44064

February 2025

Making Sustainability Happen

Executive Summary

Diversified Midstream LLC owns and operates the Myra Compressor Station (facility) located in Pike County, Kentucky. The facility is classified as a conditional major source and currently operates in accordance with the Conditional Major Operating Permit F-20-020, originally issued on August 10, 2020. This permit expires on August 10, 2025.

In accordance with Section G, Condition 2(a) of Permit F-20-020, pursuant to 401 KAR 52.030, Section 12, this renewal application is being filed at least six months prior to the expiration date of the current operating permit. Additionally, through this renewal submittal, pursuant to 401 KAR 52.030, Section 16, a significant permit revision is being requested to remove requirements deemed not applicable to equipment on site.

Pursuant to 401 KAR 52.030, Sections 4(2)(b) and (c), permit revision and renewal applications shall only provide information that is related to the change, new, or different from the most recent permit application for sources with source-wide permit. Accordingly, this application includes only the necessary KY DAQ forms and facility information.

The enclosed submittal, both timely and complete, satisfies the submission requirements.

Table of Contents

Tables in Text

Appendices

Attachments

1.0 Facility Information

Known permitting history for the Myra Compressor Station is shown below:

Table A: Myra Compressor Station Permit History

Permit	Permit Type	Activity #	Complete Date	Issuance Date	Summary of Action
F-20-020	Renewal	APE20190001	04/13/2020	08/10/20	Renewal and Addition of Engine
	Admin Amend	APE20200001	03/04/2020		Name Change
F-15-018 R3	Admin Amend	APE20180001	10/01/2018	10/03/18	Change of Ownership
F-15-018 R2	Minor Revision	APE20160001	05/11/2016	05/19/16	Added Second Process Line EP20-EP23
F-15-018 R1	Sig. Revision	APE20150001	11/18/2015	02/29/16	Renewal
F-15-018	Renewal	APE20140001	01/18/2015	09/15/15	Initial Construction Permit
F0-10-011	Initial	APE20090003	02/21/2010	05/21/10	Initial Operating Permit

1.1 Facility Location

The Myra Compressor Station is located in Pike County at 275 Beefhide Creek Rd., Myra, Kentucky, 41549. The GPS coordinates in decimal degrees are: Lat 37.28714 Long -82.60272. The UTM coordinates are: E – 357.929 km, N – 4,127.930 km.

1.2 Process Description

At the Myra Compressor Station, natural gas enters the station via a gathering pipeline system and is first compressed using four (4) existing natural gas fired compressors. The compressed natural gas stream is then filtered and processed through a dehydration unit. The dehydration unit removes water from the gas stream with an absorption process using triethylene glycol (TEG) as the absorption medium. The TEG is regenerated and recirculated using a distillation step and heat provided by the regenerator reboiler. The natural gas stream from the dehydration unit is then reintroduced into the pipeline to be transported further along the distribution system. Overheads from the regenerator and flash tank vapors are sent to the thermal oxidizer (95% control efficiency). Liquids removed from the natural gas stream via dehydration are stored in storage tanks at the facility.

1.3 Significant Revision Information

As previously stated in the Executive Summary, this renewal application includes a significant revision to address the removal of requirements in the permit related to the operation of Emission Unit 02, the TEG Dehydration Unit. Emissions supplied in the prior renewal application as well language in the Statement of Basis/Summary that issued at the same time as Permit F-20-020 detail that the site is recognized as an area source of HAPs. With that said, the permit includes requirements that align with demonstrating compliance as a major source of HAPs

under Subpart HH related to continuous monitoring, testing and reporting. It is the wish of Diversified through this renewal/significant revision that these requirements be removed and/or rewritten to show the unit maintains compliance with Subpart HH as an area source of HAPs by maintaining records demonstrating the actual average emissions of benzene from the unit are less than 0.9 Mg/yr (1.0 ton/yr) as specified in 40 CFR 63.774(d)(1). Compliance with this Requirement exempts the site from any of the control and operating requirements as outlined in 40 CFR 63.764(e)(1)(ii). Additionally, Diversified is requesting that compliance with the benzene exemption and determining of actual average benzene emissions allow for the use of Promax Process Simulation Software in addition to GRI-GLYCalc Software as outlined in the current permit. EPA has made a recent determination allowing for the use of Promax as an alternative as published as ALT-147 and included as Attachment B to this application.

2.0 Regulatory Discussion

Through this renewal/significant revision application, the Myra Compressor Station will retain its status as a conditional major source whose emissions are limited below the threshold for Title V. To preclude the applicability of 401 KAR 52:020 (Title V Permits), the facility utilizes control devices to reduce emissions to below major source thresholds. Source wide emissions of VOC, HAP, and combined HAPs are limited to 90, 9, and 22.5 tons per year each, respectively, as set forth in the current operating permit. The table below details the permitted emissions units for the site;

Table B: Emission Units

Emission Unit ID	Description	Control
01	Engine #3 – Caterpillar G3512LE w / OxCat; 4SLB; 810 hp	Oxidation Catalyst
02	TEG Dehydration Unit / Reboiler – Natco Custom System; 35mmscf/d (Dehydration Unit) & 1.5 mmBtu/hr (Reboiler)	Thermal Oxidizer (95% Control Efficiency)
03	Emergency Generator – Cummins Model GTA855; 4SRB; 293 hp	None
04	Engine #5 – Waukesha L7044GSI-S5 w/ NSCR Catalyst; 4SRB; 1900 hp	Miratech 3 Way NSCR Catalyst

2.1 Emission Unit 01 – Engine #3: 4SLB NG Fired RICE

Emission Unit 01, an 810 hp, 4SLB, Caterpillar G3512 TALE compressor engine is subject to Subpart ZZZZ and maintains compliance with the regulation in accordance with §63.6640, Table 2d (Line 9) and Table 6 (Line 14) of Subpart ZZZZ. The reporting and recordkeeping requirements pertaining to this engine is kept in accordance with §63.6655.

2.2 Emission Unit 02 – TEG Dehydration Unit w/ Reboiler

The TEG Dehydration Unit, Emission Unit 02, will continue to be subject to the area source requirements of this subpart and demonstrates compliance by keeping records detailing that

actual average benzene emissions from the unit are less than 0.90 Mg/yr (1 ton/yr) as specified in 63.774(d)(1). Compliance with this Requirement exempts the site from any of the control and operating requirements as outlined in 40 CFR 63.764(e)(1)(ii).

Additionally, the reboiler associated with the TEG Dehydration unit is subject to the emission limits for PM and SO2 from 401 KAR 59:015, Sections 4 and 5 as well as subject to the requirements from 401 KAR 59:015 Section 7.

2.3 Emission Unit 03 – NG Fired Emergency Engine

Emission Unit 03, a 293 hp, 4SRB, Cummins Model GTA855 emergency engine is subject to Subpart ZZZZ and maintains compliance with the regulation in accordance with §63.6625(f), §63.6640, Table 2d (Line 5) and Table 6 (Line 9) of Subpart ZZZZ. The reporting and recordkeeping requirements pertaining to this engine is kept in accordance with §63.6655.

2.4 Emission Unit 04 – Engine #5: 4SRB NG Fired RICE

Emission Unit 04, a 1,900 hp, 4SRB, Waukesha L7044 GSI S5 compressor engine was manufactured on 12/2019 and therefore is considered a new unit under Subpart JJJJ. The unit will maintain compliance with the regulation by complying with the emission limits found within Table 1 (Line 6) for SI Engines HP≥500. Those emissions limits are found in the table below;

- Table 1 to Subpart JJJJ of Part 60—NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines / HP≥500/ Manufactured after 07/01/2007

g/Hp hr			ppm_{vd} at 15% O_2		
NOx	CO	VOC	NOx	CO	VOC
1.0	2.0	0.7	82	270	60

Compliance with these limitations shall be demonstrated every 8,760 hours or three years of operations, whichever comes first.

2.5 Insignificant Activities

The following listed activities have been determined to be insignificant activities pursuant to 401 KAR 52.030, Section 6.

Table C: Insignificant Activities

Description	Generally Applicable Regulation
Two (2) 2,000 Gallon Steel Oil Tanks	None
One (1) 8,820 Gallon Steel Produced Fluids Tank	None
One (1) 4,000 Gallon Steel TEG Tank	None
One (1) 1,000 Gallon Steel Used Oil Tank	None
One (1) 1,000 Gallon Steel Antifreeze Tank	None
Five (5) Assorted 55 Gallon Oil Day Tanks	None

Appendix A KY DAQ Form DEP7007AI

Conditional Major Operating Permit Renewal / Significant Permit Revision Application

Myra Compressor Station

Diversified Midstream LLC

SLR Project No.: 116.021344.00001

February 2025

Division for Air Quality

300 Sower Boulevard

Frankfort, KY 40601

(502) 564-3999

DEP7007AI

Administrative Information

___ Section AI.1: Source Information

___ Section AI.2: Applicant Information

___ Section AI.3: Owner Information

___ Section AI.4: Type of Application

___ Section AI.5: Other Required Information

___ Section AI.6: Signature Block

___ Section AI.7: Notes, Comments, and Explanations

Additional Documentation

___ Additional Documentation attached

Source Name: **Myra Compressor Station**

KY EIS (AFS) #: **21-** **195-00247**

Permit #: **F-20-020**

Agency Interest (AI) ID: **44064**

Date: **5-Feb-25**

Section AI.1: Source Information

Physical Location Address:	**Street:**	275 Beefhide Creek Rd				
	City:	Myra	**County:**	Pike	**Zip Code:**	41549
Mailing Address:	**Street or P.O. Box:**	414 Summers Street				
	City:	Charleston	**State:**	WV	**Zip Code:**	25301

Standard Coordinates for Source Physical Location

Longitude: 37.2851 (decimal degrees) **Latitude:** -82.6089 (decimal degrees)

Primary (NAICS) Category: Natural Gas Extraction **Primary NAICS #:** 211130

Classification (SIC) Category: Crude Petroleum and Natural Gas **Primary SIC #:** 1311

Briefly discuss the type of business conducted at this site: Natural Gas Compressor Station

Description of Area Surrounding Source: ☑ Rural Area ☐ Industrial Park ☐ Residential Area ☐ Urban Area ☐ Industrial Area ☐ Commercial Area

Is any part of the source located on federal land? ☐ Yes ☑ No

Number of Employees: 0

Approximate distance to nearest residence or commercial property: *325 ft* **Property Area:** _____ **Is this source portable?** ☐ Yes ☑ No

What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

NPDES/KPDES:	☐ Currently Hold	☐ Need	☑ N/A
Solid Waste:	☐ Currently Hold	☐ Need	☑ N/A
RCRA:	☐ Currently Hold	☐ Need	☑ N/A
UST:	☐ Currently Hold	☐ Need	☑ N/A

Type of Regulated Waste Activity:

☐ Mixed Waste Generator ☐ Generator ☐ Recycler ☐ Other: _____

☐ U.S. Importer of Hazardous Waste ☐ Transporter ☐ Treatment/Storage/Disposal Facility ☑ N/A

Section AI.2: Applicant Information

Applicant Name: Diversified Midstream LLC

Title: (if individual)

Mailing Address: **Street or P.O. Box:** 101 McQuiston Dr
City: Jackson Center **State:** PA **Zip Code:** 16133

Email: (if individual) rstilwell@dgoc.com

Phone: (276) 245 6057

Technical Contact

Name: Rocky Stilwell

Title: EHS

Mailing Address: **Street or P.O. Box:** PO Box 158
City: Pikeville **State:** KY **Zip Code:** 41501

Email: rstilwell@dgoc.com

Phone: (276) 245 6057

Air Permit Contact for Source

Name: Chris Boggess

Title: Senior Engineer

Mailing Address: **Street or P.O. Box:** 8 Capitol St., Suite 300
City: Charleston **State:** WV **Zip Code:** 25301

Email: cboggess@slrconsulting.com

Phone: (681) 205 8949

Section AI.3: Owner Information

☑ **Owner same as applicant**

Name:

Title:

Mailing Address: **Street or P.O. Box:**

City: **State:** **Zip Code:**

Email:

Phone:

List names of owners and officers of the company who have an interest in the company of 5% or more.

Name	Position

Section AI.4: Type of Application

Current Status: ☐ Title V ☑ Conditional Major ☐ State-Origin ☐ General Permit ☐ Registration ☐ None

Requested Action: *(check all that apply)*

☐ Name Change	☐ Initial Registration	☑ Significant Revision	☐ Administrative Permit Amendment
☑ Renewal Permit	☐ Revised Registration	☐ Minor Revision	☐ Initial Source-wide OperatingPermit
☐ 502(b)(10)Change	☐ Extension Request	☐ Addition of New Facility	☐ Portable Plant Relocation Notice
☐ Revision	☐ Off Permit Change	☐ Landfill Alternate Compliance Submittal	☐ Modification of Existing Facilities
☐ Ownership Change	☐ Closure		

Requested Status: ☐ Title V ☑ Conditional Major ☐ State-Origin ☐ PSD ☐ NSR ☐ Other: _____

Is the source requesting a limitation of potential emissions? ☐ Yes ☐ No

Pollutant:	Requested Limit:	Pollutant:	Requested Limit:
☐ Particulate Matter		☐ Single HAP	
☐ Volatile Organic Compounds (VOC)		☐ Combined HAPs	
☐ Carbon Monoxide		☐ Air Toxics (40 CFR 68, Subpart F)	
☐ Nitrogen Oxides		☐ Carbon Dioxide	
☐ Sulfur Dioxide		☐ Greenhouse Gases (GHG)	
☐ Lead		☐ Other	

For New Construction:

Proposed Start Date of Construction: *(MM/YYYY)* _____ **Proposed Operation Start-Up Date:** *(MM/YYYY)* _____

For Modifications:

Proposed Start Date of Modification: *(MM/YYYY)* _____ **Proposed Operation Start-Up Date:** *(MM/YYYY)* _____

Applicant is seeking coverage under a permit shield. ☐ **Yes** ☐ **No** **Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.**

Section AI.5 Other Required Information

Indicate the documents attached as part of this application:

- ☐ DEP7007A Indirect Heat Exchangers and Turbines
- ☐ DEP7007B Manufacturing or Processing Operations
- ☐ DEP7007C Incinerators and Waste Burners
- ☐ DEP7007F Episode Standby Plan
- ☐ DEP7007J Volatile Liquid Storage
- ☐ DEP7007K Surface Coating or Printing Operations
- ☐ DEP7007L Mineral Processes
- ☐ DEP7007M Metal Cleaning Degreasers
- ☐ DEP7007N Source Emissions Profile
- ☐ DEP7007P Perchloroethylene Dry Cleaning Systems
- ☐ DEP7007R Emission Offset Credit
- ☐ DEP7007S Service Stations
- ☐ DEP7007T Metal Plating and Surface Treatment Operations
- ☑ DEP7007V Applicable Requirements and Compliance Activities
- ☐ DEP7007Y Good Engineering Practice and Stack Height Determination
- ☐ DEP7007AA Compliance Schedule for Non-complying Emission Units
- ☐ DEP7007BB Certified Progress Report
- ☐ DEP7007CC Compliance Certification
- ☑ DEP7007DD Insignificant Activities
- ☐ DEP7007EE Internal Combustion Engines
- ☐ DEP7007FF Secondary Aluminum Processing
- ☐ DEP7007GG Control Equipment
- ☐ DEP7007HH Haul Roads
- ☐ Confidentiality Claim
- ☐ Ownership Change Form
- ☐ Secretary of State Certificate
- ☐ Flowcharts or diagrams depicting process
- ☐ Digital Line Graphs (DLG) files of buldings, roads, etc.
- ☑ Site Map
- ☐ Map or drawing depicting location of facility
- ☐ Safety Data Sheet (SDS)
- ☐ Emergency Response Plan
- ☐ Other: _____

Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.

Wes Smith

Authorized Signature

2/5/2025

Date

Wes Smith

Type or Printed Name of Signatory

VP Midstream Operations - Southern Division

Title of Signatory

*Responsible official as defined by 401 KAR 52:001.

Section AI.7: Notes, Comments, and Explanations

Appendix B KY DAQ Form DEP7007DD

Conditional Major Operating Permit Renewal / Significant Permit Revision Application

Myra Compressor Station

Diversified Midstream LLC

SLR Project No.: 116.021344.00001

February 2025

Division for Air Quality
300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007DD

Insignificant Activities

___ Section DD.1: Table of Insignificant Activities
___ Section DD.2: Signature Block
___ Section DD.3: Notes, Comments, and Explanations

Source Name: **Myra Compressor Station**

KY EIS (AFS) #: **21- 195-00247**

Permit #: **F-20-020**

Agency Interest (AI) ID: **44064**

Date: **2/5/2025**

Section DD.1: Table of Insignificant Activities

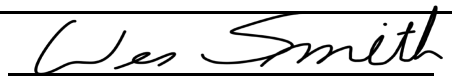
*Identify each activity with a unique Insignificant Activity number (IA #); for example: 1, 2, 3… etc.

Insignificant Activity #	Description of Activity including Rated Capacity	Serial Number or Other Unique Identifier	Applicable Regulation(s)	Calculated Emissions
1	Storage Tank	Tank 1 (2,000 Gal - Oil)	401 KAR 63:010	VOCs - 0.12 tpy HAPs - <0.01 tpy
2	Storage Tank	Tank 2 (2,000 Gal - Oil)	401 KAR 63:010	VOCs - 0.12 tpy HAPs - <0.01 tpy
3	Storage Tank	Tank 3 (8,820 Gal - Produced Fluids)	401 KAR 63:010	VOCs - 0.37 tpy HAPs - <0.01 tpy
4	Storage Tank	Tank 4 (4,000 Gal - TEG)	401 KAR 63:010	VOCs - <0.01 tpy HAPs - <0.01 tpy
5	Storage Tank	Tank 5 (1,000 Gal - Used Oil)	401 KAR 63:010	VOCs - 0.09 tpy HAPs - <0.01 tpy

Insignificant Activity #	Description of Activity including Rated Capacity	Serial Number or Other Unique Identifier	Applicable Regulation(s)	Calculated Emissions
6	Storage Tank	Tank 6 (1,000 Gal - Antifreeze)	401 KAR 63:010	VOCs - <0.01 tpy HAPs - <0.01 tpy
7	Storage Tank	Five (5) Assorted 55 Gallon Oil Day Tanks	401 KAR 63:010	VOCs - <0.01 tpy HAPs - <0.01 tpy

Section DD.2: Signature Block

I, THE UNDERSIGNED, HEREBY CERTIFY UNDER PENALTY OF LAW, THAT I AM A RESPONSIBLE OFFICIAL, AND THAT I HAVE PERSONALLY EXAMINED, AND AM FAMILIAR WITH, THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ITS ATTACHMENTS. BASED ON MY INQUIRY OF THOSE INDIVIDUALS WITH PRIMARY RESPONSIBILITY FOR OBTAINING THE INFORMATION, I CERTIFY THAT THE INFORMATION IS ON KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE OR INCOMPLETE INFORMATION, INCLUDING THE POSSIBILITY OF FINE OR IMPRISONMENT.



Authorized Signature

2/5/2025

Date

By:

Wes Smith

Type/Print Name of Siguatory

VP Midstream Operations - Southern Division

Title of Siguatory

Section DD.3: Notes, Comments, and Explanations

Appendix C KY DAQ Form DEP7007V

Conditional Major Operating Permit Renewal / Significant Permit Revision Application

Myra Compressor Station

Diversified Midstream LLC

SLR Project No.: 116.021344.00001

February 2025

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007V

Applicable Requirements and Compliance Activities

___ Section V.1: Emission and Operating Limitation(s)
___ Section V.2: Monitoring Requirements
___ Section V.3: Recordkeeping Requirements
___ Section V.4: Reporting Requirements
___ Section V.5: Testing Requirements
___ Section V.6: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI

Source Name: **Myra Compressor Station**
KY EIS (AFS) #: **21-** **195-00247**
Permit #: **F-20-020**
Agency Interest (AI) ID: **44064**
Date: **5-Feb-25**

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
02	Triethylene Glycol (TEG) Dehydration Unit	See Section 2 (Regulatory Discussion) of Application					

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
02	Triethylene Glycol (TEG) Dehydration Unit		See Section 2 (Regulatory Discussion) of Application		

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
02	Triethylene Glycol (TEG) Dehydration Unit		See Section 2 (Regulatory Discussion) of Application		

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
02	Triethylene Glycol (TEG) Dehydration Unit		See Section 2 (Regulatory Discussion) of Application		

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
02	Triethylene Glycol (TEG) Dehydration Unit		See Section 2 (Regulatory Discussion) of Application		

Section V.6: Notes, Comments, and Explanations

Attachment A
Suggested Permit Language

Conditional Major Operating Permit Renewal / Significant Permit Revision Application

Myra Compressor Station

Diversified Midstream LLC

SLR Project No.: 116.021344.00001

February 2025

Commonwealth of Kentucky
Energy and Environment Cabinet
Department for Environmental Protection
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, Kentucky 40601
(502) 564-3999

FINAL

AIR QUALITY PERMIT
Issued under 401 KAR 52:030

Permittee Name:	**Diversified Midstream LLC**
Mailing Address:	**P.O. Box 6070 Charleston, WV 25362**
Source Name:	**Diversified Midstream LLC - Myra Compressor Station**
Mailing Address:	**P.O. Box 6070 Charleston, WV 25362**
Source Location:	**275 Beefhide Creek Road, Myra, KY 41549**
Permit ID:	**F-20-020**
Agency Interest #:	**44064**
Activity ID:	**APE20190001, APE20200001**
Review Type:	**Conditional Major, Construction/Operating**
Source ID:	**21-195-00247**
Regional Office:	**Hazard Regional Office 1332 S KY 15, Suite 100 Hazard, KY 41701 (606) 435-6022**
County:	**Pike**
Application Complete Date:	**April 13, 2020**
Issuance Date:	**August 10, 2020**
Expiration Date:	**August 10, 2025**

Rick S. Shewekah

For Melissa Duff, Director
Division for Air Quality

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

Emission Unit 02 (EP06) Triethylene Glycol (TEG) Dehydration Unit with Reboiler

EMISSION UNIT	DESCRIPTION
EP06	**TEG Dehydration unit / Reboiler** **NATCO Custom System** TEG dehydration operating rate: 1.46 mmscf/hr (35mmscf/day) Primary Fuel for Reboiler: Natural Gas Reboiler fuel consumption: 0.0015 mmscf/hr Installation Date: May 1, 2010; Stack ID#: 06 Control Device: Thermal Oxidizer (TO) Control Efficiency: 95% Rated capacity of TO: 10mmBtu/hr

APPLICABLE REGULATIONS:

401 KAR 63:002, Section 2(4)(x), 40 C.F.R. 63.760 to 63.777, Appendix (Subpart HH), National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities.

401 KAR 59:015, New Indirect Heat Exchangers.

1. Operating Limitations:

a. To preclude major source status for HAP emissions, the thermal oxidizer shall be in operation at all times the TEG glycol dehydrator (EP06) is operating. [401 KAR 52:030, Section 10]

b. For the reboiler, pursuant to 401 KAR 59:015, Section 7(1)(a), the permittee shall comply with 401 KAR 50:055, Section 2(5).

c. For the reboiler, pursuant to 401 KAR 59:015, Section 7(1)(b), the frequency and duration of startup periods or shutdown periods shall be minimized by the affected facility.

d. For the reboiler, pursuant to 401 KAR 59:015, Section 7(1)(c), all reasonable steps shall be taken by the permittee to minimize the impact of emissions on ambient air quality from the affected facility during startup periods and shutdown periods.

e. For the reboiler, pursuant to 401 KAR 59:015, Section 7(1)(e), startups and shutdowns shall be conducted according to either:
   i. The manufacturer's recommended procedures or,
   ii. Recommended procedures for a unit of similar design, for which manufacturer's recommended procedures are available, as approved by the Cabinet based on documentation provided by the permittee.

Compliance Demonstration Method:
For the reboiler, see **5. Specific Reporting Requirements** c.

~~f. During operation of the TEG Dehydration Unit, the 24-hr average thermal oxidizer stack temperature shall not fall below the stack temperature established during the most recent performance test which demonstrated compliance. The 24-hr average stack temperature~~

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

~~shall be calculated using all the data points collected during the 24-hr period while the TEG Dehydration Unit is in operation.~~

~~g. At least four data points must be collected per hour while the TEG Dehydration Unit is in operation.~~

~~**Compliance Demonstration Methods:**~~

~~i. Compliance shall be demonstrated by recording the temperature in the stack and calculating the 24-hr average operating temperature. In lieu of calculating the 24-hr average, the permittee may choose to ensure that all data points collected do not fall below the stack temperature established during the most recent performance test which demonstrated compliance.~~

~~ii. The permittee shall install, calibrate, maintain and operate in accordance with manufacturer's specifications a temperature monitoring device equipped with a continuous monitor in the stack of the thermal oxidizer.~~

~~iii. The temperature-monitoring device shall have an accuracy of ± 0.75 percent of the temperature measured in degrees Celsius.~~

~~iv. Before using the sensor for the first time or when relocating or replacing the sensor, the permittee shall perform a validation check by comparing the sensor output to a calibrated temperature measurement device.~~

2. Emission Limitations:

a. See Section **D.3, Source Emission Limitations** for HAP and VOC emission limitations.

b. Pursuant to 401 KAR 59:015, Section 4(1)a. and Section 5(1)a(1), particulate matter and sulfur dioxide emissions shall not exceed **0.56** and **3.0** lb/mmBtu, respectively for the reboiler (EP06).

c. Pursuant to 401 KAR 59:015, section 4(2), the opacity of visible emissions shall not exceed 20 percent from the reboiler (EP06) except as provided below:

i. Pursuant to 401 KAR 59:015, Section 4(2)(b), a maximum of 40% opacity is permissible for not more than 6 consecutive minutes in any 60 consecutive minute period during cleaning the fire box or blowing soot.

ii. Pursuant to 401 KAR 59:015, Section 4(2)(c), the opacity standard does not apply during building a new fire for the period required to bring the boiler up to operating conditions, provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

iii. Pursuant to 401 KAR 50:055, Section 2(4), the opacity standard does not apply during periods of startup and shutdown.

d. The actual average benzene emissions from the glycol dehydration unit process vent shall be less than 0.90 megagrams per year (1.0 tpy) in order to meet the exemption criteria specified in 40 CFR 63.764 (e)(1)(ii).

Compliance Demonstration Method:

a. See **Section D.3, Source Emission Limitations and Testing Requirements, Compliance Demonstration Method**.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

b. The reboiler is assumed to be in compliance with the applicable mass emission standards (lb/mmBtu) for particulate matter and sulfur dioxide while burning natural gas.

c. The reboiler is assumed to be in compliance with the applicable visible emission standard while burning natural gas.

d. The permittee shall determine actual average benzene emissions for the glycol dehydration unit using ***either Promax Process Simulation Software*** or 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 glycol 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)]

e. The controlled benzene emission rate shall be determined by applying the thermal oxidizer VOC destruction efficiency to the emission rate determined by the GRI-GLYCalc™ model.

~~**3. Testing Requirements:**~~

~~a. Within 5 years following the most recent test approved by the Division, the permittee shall conduct testing for the determination of the destruction efficiency of VOC and HAP emissions.~~

~~b. The performance test shall demonstrate ≥95% VOC and HAP destruction efficiency or the concentration of total organic compounds (TOC) or total HAP in the exhaust gases at the outlet to the thermal oxidizer maintains a level equal to or less than 20 parts per million by volume on a dry basis corrected to 3 percent oxygen.~~

~~c. Testing shall be conducted at such times as may be required by the Cabinet in accordance with 401 KAR 50:045.~~

~~d. See **Section G – General Provisions.**~~

4. Specific Monitoring Requirements:

a. Pursuant to 401 KAR 52:030, Section 10, the permittee shall maintain monthly records of natural gas burned in the reboiler.

~~b. The permittee shall continuously monitor the stack temperature when the TEG Dehydration Unit is in operation.~~

5. Specific Recordkeeping Requirements:

a. The permittee shall keep records of the monthly natural gas usage from the reboiler.

b. The permittee shall comply with the recordkeeping provisions of 40 CFR 63, Subpart A that apply to sources subject to 40 CFR 63, Subpart HH. The recordkeeping provisions of 40 CFR 63 Subpart A that apply and those that do not apply are listed in Table 2 of 40 CFR 63, Subpart HH.

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

c. The owner or operator of a glycol dehydration unit (EP06) that meets the exemption criteria in 40 CFR 63.764(e)(1)(i) or (ii) shall maintain the records of 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 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)(i) and (ii)].

~~d. The permittee shall maintain records of the following information for the thermal oxidizer:~~
~~i. The design and/or manufacturer's specifications.~~
~~ii. The operational procedures and preventive maintenance records.~~
~~iii. The average stack temperature during the most recent performance test which demonstrated compliance.~~
~~iv. The 24-hr average stack temperature shall be recorded. In lieu of maintaining records of the 24-hr average, the permittee may keep records of all data points collected while the TEG Dehydration Unit is in operation.~~
~~v. Record all periods (during TEG Dehydration Unit operation), in which the 24-hour average stack temperature of the thermal oxidizer is more than 28°C (50°F) below the stack temperature established during the most recent performance test. If the permittee chooses not to calculate the 24-hr average in accordance with **1. Operating Limitations**, **Compliance Demonstration Methods**, the permittee shall record all periods in which any data point collected falls more than 28°C (50°F) below the stack temperature established during the most recent performance test. A daily log of the following information shall be kept during such periods:~~
~~(1) Whether any air emissions were visible from the facilities associated with the thermal oxidizer.~~
~~(2) Whether visible emissions were normal for the process.~~
~~(3) The cause of the visible emissions.~~
~~(4) Corrective action(s) taken.~~
~~vi. If a 24-hour average temperature falls more than 50°F below the operating temperature established during the most recent performance test, then the permittee shall assume a destruction efficiency of zero for that time period for the purpose of estimating emissions. If the permittee chooses not to calculate the 24-hr average in accordance with **1. Operating Limitations**, **Compliance Demonstration Methods**, the permittee shall assume a destruction efficiency of zero for all time periods that any data point collected falls more than 50°F below the operating temperature established during the most recent performance test.~~
~~vii. The permittee shall keep a record of the duration for which the by-pass valve diverts emissions from the thermal oxidizer.~~

e. All records shall be retained at the source for a period of five years.

6. Specific Reporting Requirements:

~~a. Area sources located outside UA plus offset and UC boundaries are not required to submit notifications of compliance status under 40 CFR 63.9(h)(1) – (3). [Table 2 of 40 CFR 63, Subpart HH].~~

b. The owner or operator of a TEG dehydration unit located at an area source that meets the criteria in 40 CFR 63.764(e)(1)(i) or 63.764 (e)(1)(ii) is exempt from the reporting

SECTION B - EMISSION POINTS, EMISSION UNITS, APPLICABLE REGULATIONS, AND OPERATING CONDITIONS (CONTINUED)

requirements for area sources in 40 CFR 63.775(c)(1) – (7) for that unit.

c. The actions, including duration of the startup periods, of the permittee of each emission unit during startup periods and shutdown periods, shall be documented by signed, contemporaneous logs or other relevant evidence [401 KAR 59:015, Section 7(1)(d)]

d. The permittee shall identify, record, and submit a written report to the Division's Hazard Regional Field office for each instance when emissions are diverted from the thermal oxidizer while the TEG Dehydration Unit is in operation. If no such instances occur during a particular 6-month period, the permittee shall state this in the semi-annual report required in **Section F – Monitoring, Recordkeeping, and Reporting Requirements**.

Attachment B
ALT-147 Letter (Promax to GLYCalc Equivalency Finding)

Conditional Major Operating Permit Renewal / Significant Permit Revision Application

Myra Compressor Station

Diversified Midstream LLC

SLR Project No.: 116.021344.00001

February 2025

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

Mr. Josh Ravichandran
Consulting Engineer -- Western U.S.
Bryan Research & Engineering, LLC
3131 Briarcrest Drive
Bryan, TX 77807

03/31/2022

Dear Mr. Ravichandran:

This letter is our response to your original request dated September 2, 2020, to Robin Segall of my staff, supplemented by your data package and emails dated March 1, 2021, and April 21, 2021, requesting broad source category-wide approval for use of Bryan Research & Engineering's process simulation software, ProMax® (ProMax) in lieu of the GRI-GLYCalc™ software (GLYCalc) for modeling glycol dehydration unit emissions in demonstrating compliance with 40 CFR 63, Subpart HH, National Emission Standards for Hazardous Air Pollutants from Oil and Gas Production Facilities (Subpart HH). The U.S. Environmental Protection Agency's (EPA) Office of Air Quality Planning and Standards, as the delegated authority, must make the determination on any major alternatives to test methods and other compliance determination procedures required under 40 CFR parts 59, 60, 61, 63, and 65.

Background

In 1995, the EPA's Office of Research and Development along with the Gas Research Institute (GRI) and the American Petroleum Institute (API) conducted a study to assess the GRI-GLYCalc model for possible regulatory use.[1] [2] BTEX (benzene/toluene/ethylbenzene/xylene) and total volatile organic compound (VOC) emissions were measured from ten glycol dehydration unit sites using a total capture condensation (TCC) approach considered by the EPA to be the benchmark test method along with two other approaches. The BTEX and total VOC emissions results from these sites were then compared with emissions values modeled for the same units using the GRI-GLYCalc software and the following process parameter inputs: gas flow rate, gas temperature, gas pressure, glycol circulation rate, dry gas water content, lean glycol water content, gas pump volume, flash tank temperature, flash tank pressure, and reboiler

[1] C.O. Rueter, Reif, D.L., and Myers; D.B. Glycol Dehydrator BTEX and VOC Emissions Testing Results at Two Units in Texas and Louisiana, Volume I, Technical Report; EPA Report Number EPA-600/R-95-046a; March 1995. Note: Sites 1 and 2 in this EPA Report correspond to Sites 9 and 10 in Tables 1 and 2 of this letter and in the EPA Office of Research and Development memo cited below summarizing the data from ten sites tested by GRI, API, and the EPA.

[2] 'Glycol Dehydrator Emissions Test Report and Emissions Estimation Methodology,' Memo from Larry G. Jones, EPA Office of Research and Development to J. David Mobley, EPA Office of Air and Radiation, dated April 13, 1995.

temperature. Tables 1 and 2 summarize the comparative data for BTEX and total VOC, respectively, from this study for the ten units. This work provided the technical basis for including GLYCalc as an option in Subpart HH.

Table 1. BTEX Comparisons (tons/yr)

Emissions Measurement Method				Emissions Calculated using GLYCalc	% Difference, GLYCalc from TCC Benchmark
Site	Total Capture Condensation (TCC)	Pressurized Rich/Lean Glycol	Atmospheric Rich/Lean Glycol		
Site 1	0.34	0.43	0.5	0.4	17.6
Site 2	4.92	5.48	5.39	9.76	98.4
Site 3	89.6	98.6	98.1	85.4	-4.7
Site 4	9.89	9.88	9.87	20.6	108.3
Site 5	29.1	26.8	26.8	45.7	57.0
Site 6	8.56	10.1	8.55	13.5	57.7
Site 7	17.7	20.6	19.3	30.1	70.1
Site 8	2.61	2.71	3	4.25	62.8
Site 9	3.58	3.71	3.79	3.87	8.4
Site 10	22.8	25.9	21.4	22.3	-2.6

Table 2. Total VOC Comparisons (tons/yr)

Emissions Measurement Method				Emissions Calculated using GLYCalc	% Difference, GLYCalc from TCC Benchmark
Site	Total Capture Condensation (TCC)	Pressurized Rich/Lean Glycol	Atmospheric Rich/Lean Glycol		
Site 1	3.48	5.42	2.41	4.68	34.5
Site 2	8.37	8.39	7.87	13.4	60.1
Site 3	166	176	168	203	22.3
Site 4	155	61.1	42.5	183	18.1
Site 5	66.7	46	42.7	81.3	21.9
Site 6	48.2	40.4	24.2	66.1	37.1
Site 7	48.3	57	48.3	65.8	33.5
Site 8	45.6	28.4	26.5	44.9	-1.5
Site 9	19.8	10.7	11.4	21.8	10.1
Site 10	36.9	37.9	30.8	36.1	-2.2

In your request, you note that the GLYCalc model is allowed for a number of emissions assessments and other determinations in Subpart HH. You also note that, in all but one instance under Subpart HH §63.773(d)(3)(i)(H), where ProMax is currently allowed, facilities are allowed to use only the GLYCalc software when choosing the option to model rather than measure emissions and related parameters from their affected glycol dehydration units. Therefore, your clients are seeking use of ProMax more widely under Subpart HH as an alternative to GRI-GLYCalc. More specifically, you are requesting to use ProMax as an alternative to GLYCalc for six specific measurement-related requirements in Subpart HH as summarized below.

1. **§63.772 (b)(2)(i)** – Allows the use of GLYCalc as one of two options for determining compliance with benzene or BTEX emissions limits from glycol dehydration units.

2. **§63.772(d)(2)(iii)** – Allows use of GLYCalc as an alternative to Method 18 (40 CFR 60, Appendix A) or ASTM Method D6420-99 (Reapproved 2004) coupled with flowrate measurements for determining BTEX emissions from glycol dehydration units.

3. **§63.772(e)(3)(iii)(B)(4)** – Allows use of GLYCalc for determining the mass rate of total organic compounds (minus methane and ethane) or total hazardous air pollutants (HAP) at the inlet of the control device for a glycol dehydration unit as an alternative to Method 18 or Method 25A (40 CFR 60, Appendix A) coupled with flowrate measurements.

4. **§§63.772(e)(4)(i) and (e)(5)** – Allows use of GLYCalc to generate a condenser performance curve as an alternative to the condenser design analysis, which includes vent stream composition, constituent concentrations, flowrate, relative humidity, and temperature.

5. **§§63.773(d)(5)(ii)(B) and (C)** – Allows use of GLYCalc to generate a condenser performance curve as an alternative to the condenser design analysis.

6. **§§63.764(d)(2)(ii) and 63.775(c)** – Specifies use of GLYCalc to calculate an alternative glycol circulation rate for use in demonstrating compliance when a triethylene glycol dehydration unit is unable to meet the sales gas specification for moisture when operating at or below the glycol circulation rate determined using the equation in §63.764(d)(2)(i).

You explain that ProMax is a process simulation product developed for the oil and gas industry that is widely used and well known for its ability to predict BTEX and VOC (volatile organic compound) absorption into ethylene glycol solutions and emissions from oil and gas facilities. It includes the capability to estimate emissions of BTEX and VOC from glycol dehydration units, as well as a number of other process parameters, using process operating data. You also explain that ProMax and GLYCalc both employ vapor-liquid equilibrium (VLE) models and mass balance calculations as the basis to predict emissions.

Justification

As justification for your request to use ProMax as an alternative to GLYCalc for six specific measurement-related requirements in Subpart HH, you again point out that Subpart HH (§63.773(d)(3)(i)(H)) already allows the use of ProMax to calculate the inlet composition and flowrate of the glycol still overheads (the inlet emissions) entering a combustion control device, which are defined as E_i. You note that the composition of this waste gas stream is a result of all other unit operations within a dehydration model and can only be accurate if all other parts of the model are also considered to be accurate and, thus, ProMax should be considered for use as an alternative to GLYCalc for the six other applications that you request and were listed above. Additionally, you note that ProMax is commonly used in place of the EPA's TANKS 4.09D

programs and that these widely accepted flash calculations used for tank emissions estimates are derived from the same accurate modified equations of state that are used for the glycol dehydration unit process simulations. You further contend that, considering both ProMax and GLYCalc employ VLE models along with balance calculations to predict emissions, ProMax is far more advanced at this point when compared to the latest version of GLYCalc (Version 4.0) as it was last revised in 2000 while ProMax continues to be updated to include the most recent VLE data.

You provided a link to an article posted online in 2011 by John M. Campbell & Co.[3] This article compares predictions from the ProMax model to those from the GLYCalc model for BTEX absorption in triethylene glycol (TEG) solutions (the most commonly used adsorption solution in glycol dehydration units). The predictions are presented for three combinations of circulation rate and temperature, all at 1000 psia (6,895 kPa), with 99.0 weight % lean TEG, and three theoretical trays in the contactor column. Table 3 below summarizes these results, which show relatively consistent agreement between the two models with the exception of benzene at the lower temperature and higher circulation ratio. In all cases, the ProMax results are more conservative than the GLYCalc results as higher BTEX absorption rates would result in higher emission rates.

Table 3. ProMax versus GLYCalc at Various Circulation Rate/Temperature Combinations

Software	Temp, °F	Circulation Ratio, gal TEG/lb H_2O removed	BTEX Absorption, %			
			Benzene	Toluene	Ethylbenzene	O-xylene
GLYCalc	77	5.39	7.8	15.6	19.3	27.7
ProMax	77	5.39	11.7	19.0	22.2	32.9
GLYCalc	95	3.12	7.6	11.6	14.5	20.9
ProMax	95	3.12	8.6	13.5	15.7	23.1
GLYCalc	122	3.67	13.5	19.1	24.3	33.2
ProMax	122	3.67	13.9	21.1	24.5	34.7

In your request, you provide comparative data for ProMax and GLYCalc for Sites 1 and 2 (referred to as Sites 9 and 10 in Tables 1 and 2 above). These two sites were the only ones from the 1995 study, now decades old, where the process parameter inputs for the glycol dehydrator units were actually published.[1] The data you submitted (see Table 4 below) show generally good agreement for both BTEX and total VOC between ProMax, GLYCalc, and the total capture condensation testing approach considered the benchmark method, with the ProMax values being consistently comparable or conservative.

[3] http://www.jmcampbell.com/tip-of-the-month/2011/06/absorption-of-aromatics-compounds-in-teg-dehydration-process/

Table 4. ProMax versus GLYCalc and Total Capture Condensation Method

Site	Pollutant	Method and Results (tons/yr)			% Difference, ProMax from GLYCalc	% Difference, ProMax from TCC Benchmark
		Total Capture Condensation (TCC)	GLYCalc	ProMax		
Site 1 (9)	BTEX	3.58	3.88	4.15	7.0	15.9
Site 2 (10)	BTEX	22.9	22.3	26.8	20.2	17.0
Site 1 (9)	Total VOC	19.8	21.8	21.7	-0.05	9.6
Site 2 (10)	Total VOC	36.9	36.1	39	8.0	5.7

With your data package, you also included comparisons of glycol dehydration unit BTEX, benzene, HAP, and VOC emissions data generated using GLYCalc and ProMax. You explain that the process input data used to run the ProMax and GLYCalc model simulations came from thirteen glycol dehydration units located in West Virginia having a wide range of inlet gas compositions[4] to represent the range of natural gas from various basins across the country, with and without flash tanks, and with and without regenerator controls. Parity plots in units of tons of emissions per year were used to summarize the comparisons for uncontrolled regenerator emission results for BTEX, HAP, and VOC; uncontrolled flash tank emission results for BTEX, HAP, and VOC; and uncontrolled regenerator emission results for benzene. These parity plots are presented as Figures 1, 2, and 3. The agreement for BTEX, benzene, and HAPS are very good and the agreement for VOC is also good, though slightly more variable.

[4] The methane mole fractions ranged from 86% to 98%, the ethane mole fractions from 1.5% to 9%, the VOC mole fractions (or C3+) from 0.08% to 3.7%, and the BTEX concentrations from 0 to 756 ppm. These ranges of concentrations can be found within a single basin and also across different basins.

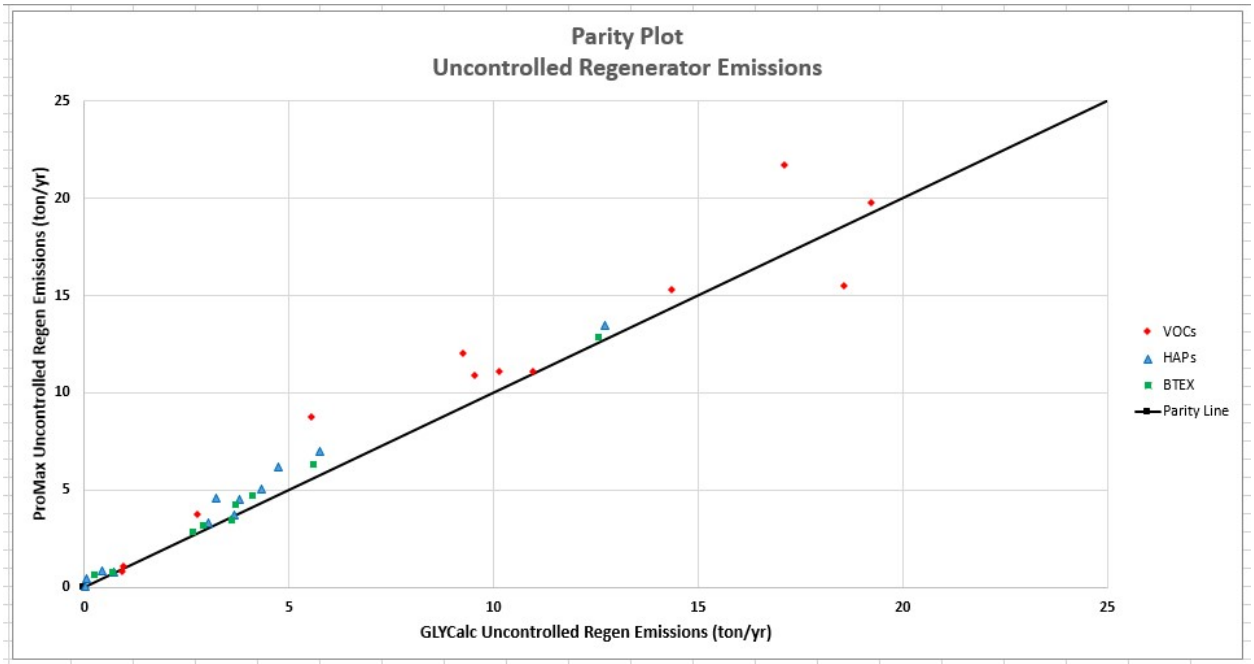


Figure 1. Parity plot for BTEX, HAP, and VOC emissions (tons/yr) from uncontrolled regenerators as determined by ProMax versus GLYCalc.

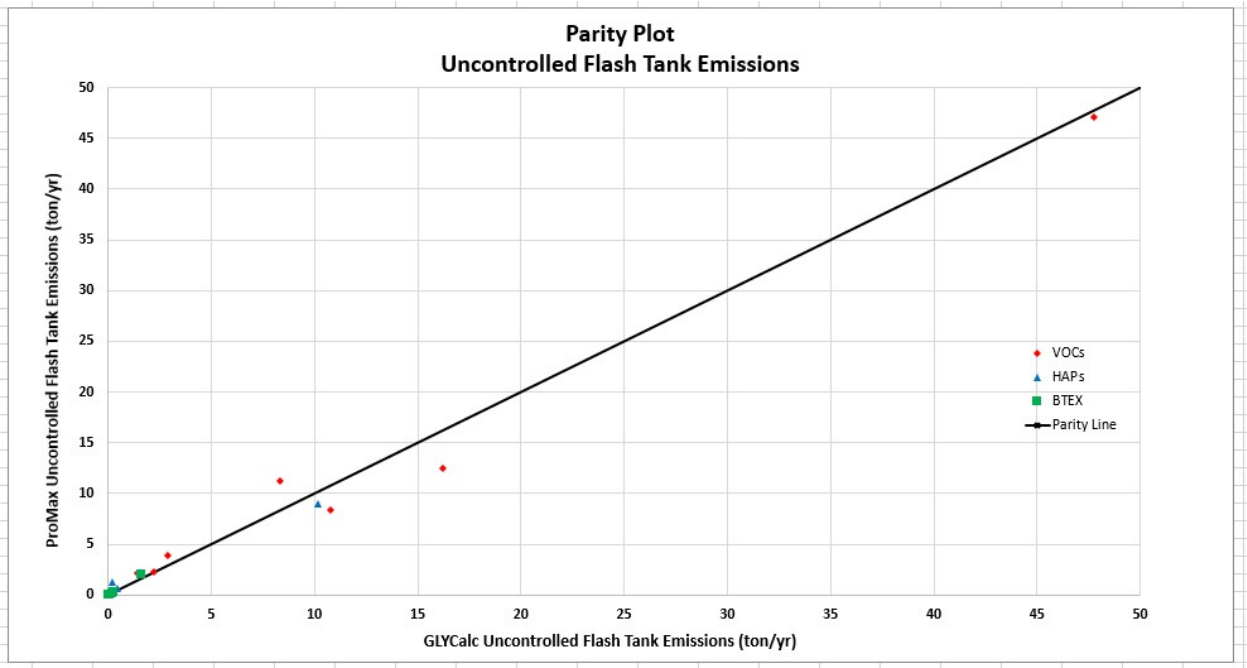


Figure 2. Parity plot for BTEX, HAP, and VOC emissions (tons/yr) from uncontrolled flash tanks as determined by ProMax versus GLYCalc.

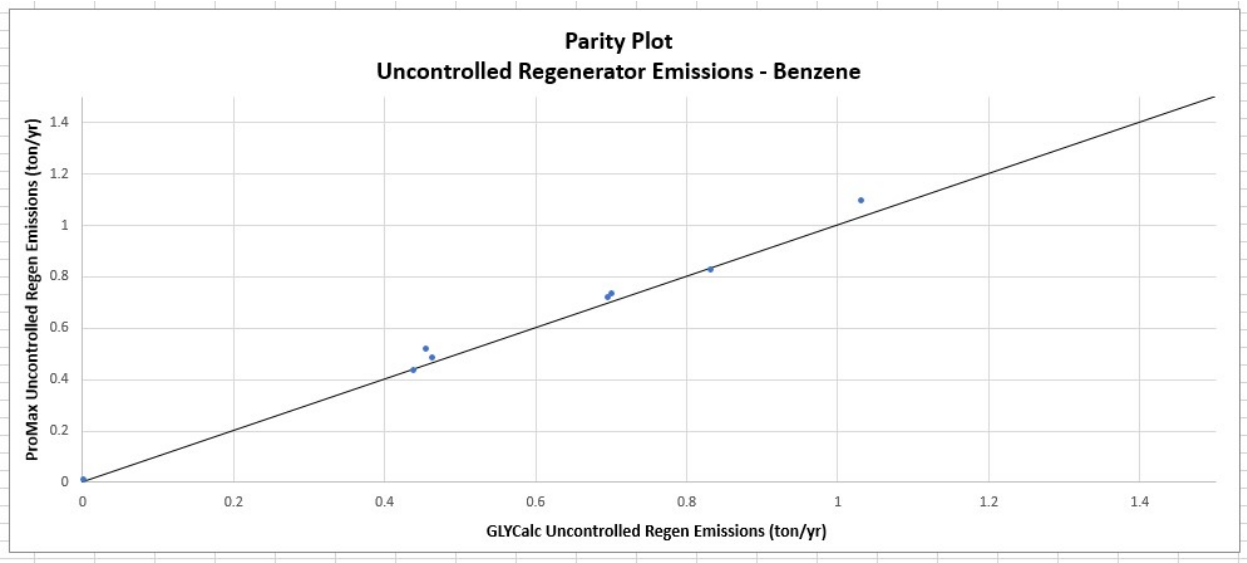


Figure 3. Parity plot for benzene emissions (tons/yr) from uncontrolled regenerators as determined by ProMax versus GLYCalc.

Lastly, you included data/information in your submittal intended to show that the VLE data upon which the ProMax model is based yields outputs that compare well with empirical data published by the Gas Processors Association (GPA).[5] In specific, Figure 4 is a parity plot for BTEX compounds along with methane comparing ProMax calculated mole percent of each compound in the liquid and vapor phases to the empirically measured results from GPA studies. The ProMax calculated and GPA empirical data compare well for both vapor and liquid phases.

[5] GPA Research Report RR-131, The Solubility of Selected Aromatic Hydrocarbons in Triethylene Glycol; H.-J. Ng, C.-J. Chen, and D.B. Robinson; DB Robinson Research Ltd, Alberta; Project 895; December 1991.

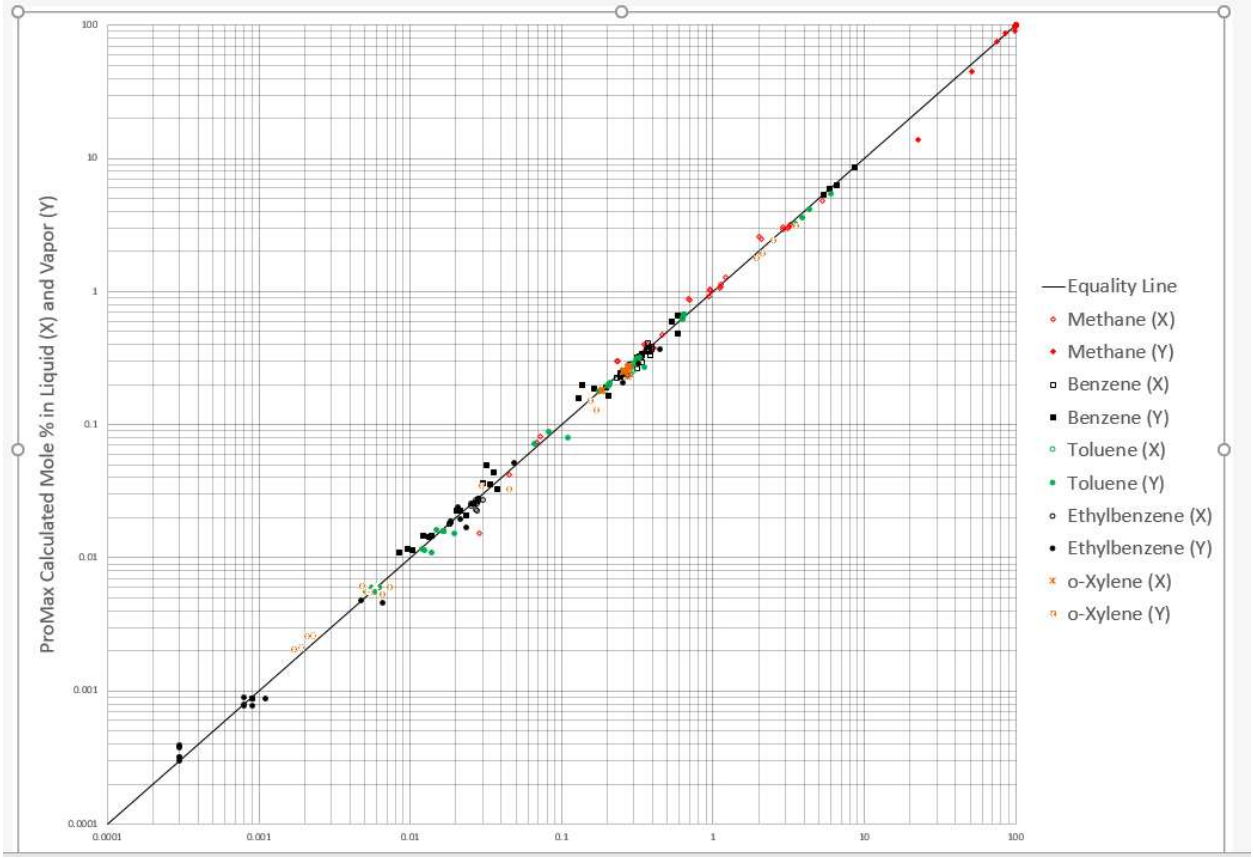


Figure 4. Parity plot for benzene, toluene, ethylbenzene, o-xylene, and methane (mole percent in the liquid and vapor phases) as calculated by ProMax versus empirically measured results from GPA.

Determination

We have reviewed your submittal including the supporting data and Subpart HH in detail. We conclude that the ProMax model results are typically equivalent or more conservative when compared to the results from the GLYCalc model and the total capture condensation method used by the EPA in its research. Therefore, we agree that the ProMax model would be suitable for performing the emissions and related parameter determinations for which the GLYCalc model is already allowed in Subpart HH and, with this letter, approve the use of the ProMax model, Version 5.0 or higher, as an alternative to the GLYCalc model under the following specific sections of 40 CFR 63, Subpart HH subject to the caveats explained below.

- §63.772 (b)(2)(i)
- §63.772(d)(2)(iii)
- §63.772(e)(3)(iii)(B)(4)
- §§63.772(e)(4)(i) and (e)(5)
- §§63.773(d)(5)(ii)(B) and (C)
- §§63.764(d)(2)(ii) and 63.775(c)

Use of the ProMax model, Version 5.0 or higher, as an alternative to the GLYCalc model is subject to the following caveats.

- Inputs to the ProMax, Version 5.0 or above, software shall include the parameters listed below, which must be representative of the actual operating conditions of the glycol dehydration unit:
    - Wet gas flowrate
    - Wet gas composition (dry basis)
    - Wet gas water content (if unknown, can assume a worst-case of 100% saturation)
    - Wet gas (absorber) temperature
    - Wet gas (absorber) pressure
    - Glycol circulation rate (or dry gas water content or glycol circulation ratio)
    - Dry gas water content
    - Lean glycol water content
    - Gas pump volume ratio (when gas injection pump is used)
    - Reboiler temperature
    - Flash tank parameters (when installed)
        - Temperature
        - Pressure
    - Control device parameters (when installed)
        - Combustion device destruction efficiency
        - Condenser temperature and pressure
    - Stripping gas (if used)
        - Type (dry gas, flash gas, nitrogen)
        - Flowrate

- Affected facilities using this alternative (ProMax as an alternative to GLYCalc under Subpart HH) for their affected glycol dehydration units must notify the responsible agency before use of the alternative and notification should include a copy of this letter.

- Facilities must include a copy of this letter with each report presenting results using the ProMax software.

- Once a facility chooses to use ProMax as an alternative to GLYCalc under one or more of the Subpart HH provisions listed above, the facility must continue to use ProMax in meeting the provision(s) until the owner/operator receives approval from this office for use of a new alternative method or the responsible agency for use of any other options in Subpart HH, including returning to the use of GLYCalc (see §63.7(f)(5)).

Because we have approved this alternative method for application to glycol dehydration units under 40 CFR 63 Subpart HH, wherever GLYCalc has been previously allowed as detailed above, we will post this letter as ALT-147 on the EPA website at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods* for use by other interested parties.

If you have any questions regarding this approval or need further assistance, please contact Robin Segall at (919) 541-0893 or *segall.robin@epa.gov* or Jason DeWees at (919) 541- 9724 or *dewees.jason@epa.gov.*

Sincerely,

Steffan M. Johnson, Group Leader
Measurement Technology Group

cc: Sara Ayres, OECA/OC (ayres.sara@epa.gov)
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Regional Testing Contacts

regulation, or other legally binding document, the guidance documents will not be controlling.

Authority: 21 U.S.C. 408.

Dated: January 13, 2023.

Michal Freedhoff,

Assistant Administrator, Office of Chemical Safety and Pollution Prevention.

[FR Doc. 2023–00940 Filed 1–18–23; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OAR–2007–1196; FRL–10485–01–OAR]

Recent Postings of Broadly Applicable Alternative Test Methods

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of availability.

SUMMARY: This notice announces the broadly applicable alternative test method approval decisions that the Environmental Protection Agency (EPA) made under and in support of New Source Performance Standards (NSPS) and the National Emission Standards for Hazardous Air Pollutants (NESHAP) between January 1, 2022, and December 31, 2022.

FOR FURTHER INFORMATION CONTACT: An electronic copy of each alternative test method approval document is available at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods.* For questions about this notice, contact Mrs. Lula H. Melton, Air Quality Assessment Division, Office of Air Quality Planning and Standards (E143–02), Environmental Protection Agency, Research Triangle Park, NC 27711; telephone number: (919) 541–2910; fax number: (919) 541–0516; email address: *melton.lula@epa.gov.* For technical questions about individual alternative test method decisions, refer to the contact person identified in the individual approval document(s).

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this notice apply to me?

This notice will be of interest to entities regulated under 40 Code of Federal Regulations (CFR) parts 59, 60, 61, 63 and 65; state, local, and tribal agencies; and the EPA Regional offices responsible for implementation and enforcement of regulations under 40 CFR parts 59, 60, 61, 63, and 65.

B. How can I get copies of this information?

You may access copies of the broadly applicable alternative test method approval documents at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods.*

II. Background

This notice identifies broadly applicable alternative test methods that the EPA approved in 2022 under the NSPS, 40 CFR part 60 and the NESHAP, and 40 CFR part 63 programs. See Table 1 of this notice for the summary of these test methods. Source owners and operators may voluntarily use these broadly applicable alternative test methods in lieu of otherwise required test methods or related testing procedures. Use of these broadly applicable alternative test methods are not intended to and should not change the applicable emission standards.

The Administrator has the authority to approve the use of alternative test methods for compliance with requirements under 40 CFR parts 59, 60, 61, 63, and 65. This authority is found in 40 CFR 60.8(b)(3), 61.13(h)(1)(ii), and 63.7(e)(2)(ii). Additional and similar authority can be found in 40 CFR 59.104(f) and 65.158(a)(2). The criteria for approval and procedures for submission and review of broadly applicable alternative test methods are explained in a previous **Federal Register** notice published at 72 FR 4257 (January 30, 2007) and located at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods.* As explained in this notice, we will announce approvals for broadly applicable alternative test methods at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods* as they are issued and publish an annual notice that summarizes approvals for broadly applicable alternative test methods during the preceding year.

As also explained in the January 30, 2007 notice, our approval decisions involve thorough technical reviews of numerous source-specific requests for alternatives and modifications to test methods and procedures. Based on these reviews, we have often found that these modifications or alternatives would be equally valid and appropriate to apply to other sources within a particular class, category, or subcategory. Consequently, we have concluded that where either a method modification or an alternative method is clearly broadly applicable to a class, category, or subcategory of sources, it is both equitable and efficient to simultaneously approve its use for all appropriate sources and situations.

Use of approved alternative test methods is not mandatory but rather permissive. Sources are not required to employ such a method but may choose to do so in appropriate circumstances. As specified in 40 CFR 63.7(f)(5), however, a source owner or operator electing to use an alternative method for 40 CFR part 63 standards must continue to use the alternative method until otherwise authorized. Source owners or operators should, therefore, review the specific broadly applicable alternative method approval decision at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods* before electing to employ any alternative method. Source owners or operators choosing to use a broadly applicable alternative should also notify their regulatory agency prior to using the alternative.

III. Approved Alternative Test Methods and Modifications to Test Methods

This notice specifies five broadly applicable alternative test methods that the EPA approved between January 1, 2022, and December 31, 2022. The alternative method decision letter/memo designation numbers, test methods affected, sources allowed to use this alternative, and method modifications or alternative methods allowed are summarized in Table 1 of this notice. A summary of approval documents was previously made available on our Technology Transfer Network between January 1, 2022, and December 31, 2022. For more detailed information, please refer to the complete copies of these approval documents available at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods.*

As also explained in our January 30, 2007 notice, we will revisit approvals of alternative test methods in response to written requests or objections indicating that a particular approved alternative test method either should not be broadly applicable or that its use is not appropriate or should be limited in some way. Any objection to a broadly applicable alternative test method, as well as the resolution of that objection, will be announced at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods* and in a subsequent **Federal Register** notice. If we decide to retract a broadly applicable test method, we will likely consider the need for an appropriate

transition period for users either to request case-by-case approval or to transition to an approved method.

Dated: January 13, 2023.

Richard A. Wayland,

Director, Air Quality Assessment Division.

TABLE 1—APPROVED ALTERNATIVE TEST METHODS AND MODIFICATIONS TO TEST METHODS REFERENCED IN OR PUBLISHED UNDER APPENDICES IN 40 CFR PARTS 60 AND 63 POSTED BETWEEN JANUARY 2022 AND DECEMBER 2022 [a]

Alternative method decision letter/memo No.	As an alternative or modification to . . .	For . . .	You may . . .
ALT–146	ASTM E2779–10—Standard Test Method for Determining Particulate Matter Emissions from Pellet Heaters.	Certification testing of pellet heaters subject to 40 CFR part 60, subpart AAA—Standards of Performance for New Residential Wood Heaters.	Use the modified methodology in the Agency's memorandum dated February 2, 2022, entitled ''Appropriate Calculation of Medium Burn Rate Category in ASTM E–2779 Testing to calculate the Medium Burn Rate Category to conduct certification testing on pellet heaters with the caveats in the Agency's approval letter dated February 4, 2022.
ALT 147	GRI–GLYCalc software for modeling glycol dehydration unit emissions.	Sources subject to 40 CFR part 63, subpart HH—National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities.	Use Pro-Max, Version 5.0 or higher for modeling glycol dehydration unit emissions with the provisos specified in the Agency's approval letter dated March 31, 2022.
ALT 148	Flow test methods specified in 40 CFR 63.565(d)(3)(iii).	Sources subject to 40 CFR part 63, subpart Y—National Emission Standards for Marine Tank Vessel Loading Operations.	Use Method 2B—Exhaust Volume Flow Rate.
ALT 149	SW–846 Method 8270D and SW–846 Method 8015C.	Sources subject to 40 CFR part 63, subpart HHHHHHH—Polyvinyl Chloride and Copolymers Production: National Emission Standards for Hazardous Air Pollutants.	Use SW–846 Method 8270E and SW–846 Method 8015D with the provisos specified in the Agency's approval letter dated July 27, 2022.
ALT 150	Surface Emission Monitoring (SEM) procedures required under the cited sections of the following subparts: 40 CFR 60, Subpart WWW, §§ 60.753(d) and 60.755(c)–(e); 40 CFR 60, Subpart XXX, §§ 60.763(d) and 60.765(c)–(d); 40 CFR 60, Subpart Cf, §§ 60.34f(d) and 60.36f(c)–(e); 40 CFR 62, Subpart OOO, §§ 62.16716(d) and 62.16720; 40 CFR 63, Subpart AAAA, §§ 63.1958(d) and 63.1960(c)–(d).	Sources subject to 40 CFR part 60, subparts WWW, XXX, and Cf (Emission Guidelines), 40 CFR part 62, subpart OOO (Federal Plan), and 40 CFR part 63, subpart AAAA.	Use Other Test Method 51 (OTM–51) with the provisos specified in the Agency's approval letter dated December 15, 2022.

[a] Source owners or operators should review the specific broadly applicable alternative method approval letter at *https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods* before electing to employ any alternative test method.

[FR Doc. 2023–01004 Filed 1–18–23; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–OW–2002–0059; FRL–10519–01–OW]

Proposed Information Collection Request; Clean Water State Revolving Fund and Drinking Water State Revolving Fund Programs

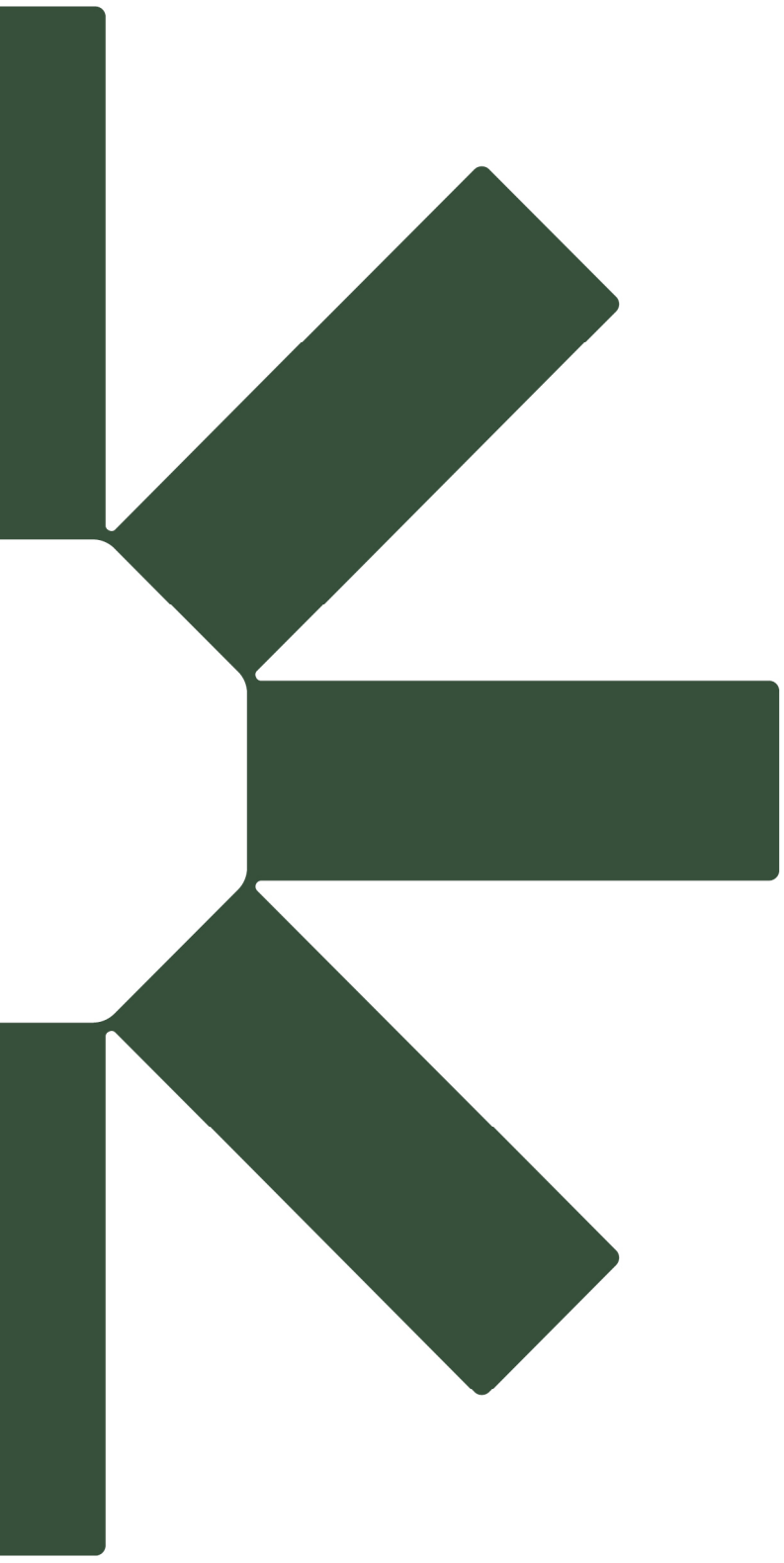
AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Environmental Protection Agency (EPA) is planning to submit an information collection request (ICR), ''Clean Water State Revolving Fund and Drinking Water State Revolving Fund Programs'' (EPA ICR No. 1803.09 OMB Control No. 2040–0185) to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act (PRA). Before doing so, the EPA is soliciting public comments on specific aspects of the proposed information collection as described in the **SUPPLEMENTARY INFORMATION** section. This is a proposed renewal of the ICR, which is currently approved through August 31, 2023, for the Drinking Water State Revolving Fund (DWSRF). This ICR consolidates the DWSRF and Clean Water State Revolving Fund (CWSRF) ICRs (ICR No. 1803.08 and ICR NO. 1391.12, respectively) because they affect the same set of respondents in similar ways. Additional information collection requirements made necessary by the Bipartisan Infrastructure Law (BIL) are similar for both programs. Therefore, EPA is consolidating the DWSRF and CWSRF ICRs, in addition to updating and renewing them, to provide a more coherent picture of the information components of EPA's SRF program. An Agency may not conduct or sponsor a collection of information nor is a person required to respond unless it displays a currently valid OMB control number.

DATES: Comments must be submitted on or before March 20, 2023.

ADDRESSES: Submit your comments, referencing Docket ID No. EPA–HQ–OW–2002–0059, online using *www.regulations.gov* (our preferred method), by email to *OW-Docket@epa.gov,* or by mail to: EPA Docket Center, Environmental Protection



Making Sustainability Happen

DIVERSIFIED GAS & OIL
CORPORATION

October 08, 2021

Division of Air Quality, Chemical Section
Department of Environmental Protection
Energy and Environment Cabinet
300 Sower Boulevard
Frankfort, KY 40601

RE: Myra Compressor Station Permit ID: F-20-020
Diversified Midstream LLC
AI # 44064

Diversified Midstream LLC is submitting this written notification for an engine swing. The

Myra Compressor Station is a natural gas production site that is in Pike County Kentucky.

Diversified Midstream LLC is replacing the existing

Caterpillar
Model: 3512LE
Serial #7NJ01059
Date of mfg:6/25/2004

With a remanufactured

Caterpillar
Model: 3512LE
Serial # 7NJ00831
Date of mfg.: 6/8/2001

The engine swing cost less than 50% of the original Caterpillar 3512LE serial 7NJ01059 and will not change the emissions requirements from the current air permit F-20-020.

If you have any questions regarding this submittal, please feel free to contact me at (276-245-6057) rstilwell@dgoc.com.

Sincerely,

Rocky Stilwell

Rocky Stilwell
EHS

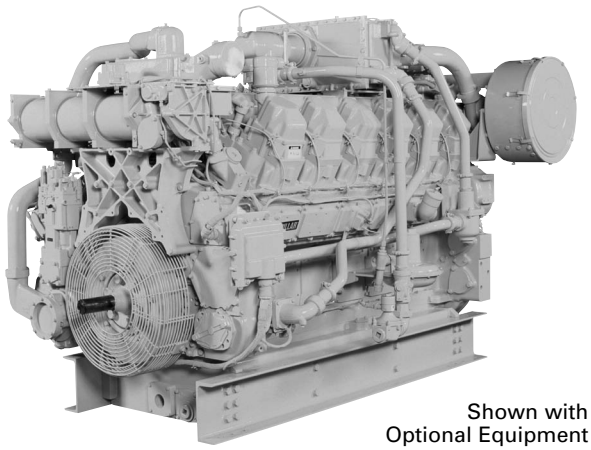
Diversified Gas and Oil
P.O. Box 158
Pikeville, KY 41502

CATERPILLAR®

Gas Petroleum Engine

G3512

810-1004 bhp
604-749 bkW
1200-1400 rpm



Shown with
Optional Equipment

CATERPILLAR® ENGINE SPECIFICATIONS

V-12, 4-Stroke-Cycle
Bore — in (mm) 6.7 (170)
Stroke — in (mm)..... 7.5 (190)
Displacement — cu in (L)..... 3,158 (51.8)
Aspiration ..... Turbocharged-Aftercooled
Capacity for Liquids — U.S. gal (L)
  Cooling System[1]..... 39 (148)
  Lube Oil System (refill)..... 89.5 (338)
Package Shipping Weight (Dry) —
  lb (kg) 14,720 (6677)

[1]Engine only.

FEATURES

■ **FULL RANGE OF ATTACHMENTS**
- Wide range of bolt-on system expansion attachments, factory designed and tested

■ **UNMATCHED PRODUCT SUPPORT OFFERED THROUGH WORLDWIDE CATERPILLAR DEALER NETWORK**
- More than 1,500 dealer outlets
- Caterpillar factory-trained dealer technicians service every aspect of your petroleum engine
- 99.7% of parts orders filled within 24 hours — worldwide
- Caterpillar parts and labor warranty
- Preventive maintenance agreements available for "repair before failure" options
- Scheduled Oil Sampling (S•O•S℠) program matches your oil sample against Caterpillar set standards to determine:
  – internal engine component condition
  – presence of unwanted fluids
  – presence of combustion by-products

■ **SINGLE-SOURCE SUPPLIER**
- Caterpillar:
  – casts engine blocks, heads, cylinder liners, and flywheel housings
  – machines critical components
  – assembles complete engine
  Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable product.
- Factory-designed systems built at Caterpillar ISO certified facilities

■ **G3512**
- Standard and low emission ratings available
- Broad operating speed range and ability to burn a wide spectrum of gaseous fuels
- Cat® Electronic Ignition System (EIS)
- Robust diesel strength design provides prolonged life and lower owning and operating costs.

■ **TESTING**
- Prototype testing on every model:
  – proves computer design
  – verifies system torsional stability
  – functionality tests every model
- Every Caterpillar engine is dynamometer tested under full load to ensure proper engine performance.

■ **WEB SITE**
- For additional information on all your petroleum power requirements, visit www.cat-oilandgas.com.

CATERPILLAR FACILITIES ISO 9001 CERTIFIED

CE

FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

SYSTEM	STANDARD	OPTIONAL
Air Inlet	Air cleaner — intermediate duty with service indicator	Remote air inlet adapter Precleaner
Charging System		Battery chargers Charging alternator
Control System	3161 mechanical governor, RH positive locking (PA-4936, PA-5320) Air fuel ratio control (LA-2032, LA-2033)	2301A speed control governor CSA700 speed control governor 3161 mechanical governor Vernier and positive locking control (PA4936, PA5320)
Cooling System	Thermostats and housing Jacket water pump Aftercooler water pump Aftercooler thermostats and housing	Aftercooler core Thermostatic valve Temperature switch, connections Expansion and overflow tank Water level switch gauge
Exhaust System	Watercooled exhaust manifolds	Flexible fittings, elbows, flanges Flange and exhaust expanders Rain cap, mufflers Low pressure gas conversions (PA4936, PA5320) Air/fuel interconnect wiring harness CSA air/fuel ratio and ingition Air/fuel ratio interconnect wiring harness LA2032, LA2033) Fuel filter
Flywheel/ Flywheel Housing	SAE No. 00 flywheel SAE No. 00 flywheel housing SAE standard rotation	
Fuel System	Gas pressure regulator Natural gas carburetor	
Ignition System	Cat Electronic Ignition System (EIS)	CSA ignition (PA4936, PA5320) CSA with AFRC (LA2032, LA2033)
Instrumentation	Instrument panel — RH, 12-hole service meter	Alarm module Customer communication module Instrument panel gauges (PA4936, PA5320) Instrument panel gauges f/u/w CSA electronic ignition system (LA2032, LA2033)
Lube System	Crankcase breathers (top mounted) Oil cooler Oil filter, RH Oil bypass filter Shallow oil pan Oil sampling valve	Oil bypass filter removal Oil pan accessories Sump pump Air prelube pump Turbo oil accumulator Lubricating oil
Mounting System	Engine mounting rails	Rails Vibration isolators
Power Take-Offs	Two-sided front housing	Front accessory drive Auxiliary drive shafts and pulleys Front stub shafts Pulleys
Protection	Electronic shutoff system High coolant temperature Detonation Overspeed Emergency stop pushbutton Gas valve Start, run, stop switch	Gas valve Explosion relief valves Status control box interconnect wiring harness (PA4936, PA5320)
Starting System		Air starting motor, air pressure regulator, air silencer Electric air start controls Electric starting motors — dual 24-volt Starting aids Battery set (24-volt dry), cables, and rack
General	Paint, Caterpillar yellow Vibration damper and guard Lifting eyes	Flywheel guard Damper guard removal Engine barring group Premium 8:1 pistons and cylinder heads Tool set Digital diagnostic tool

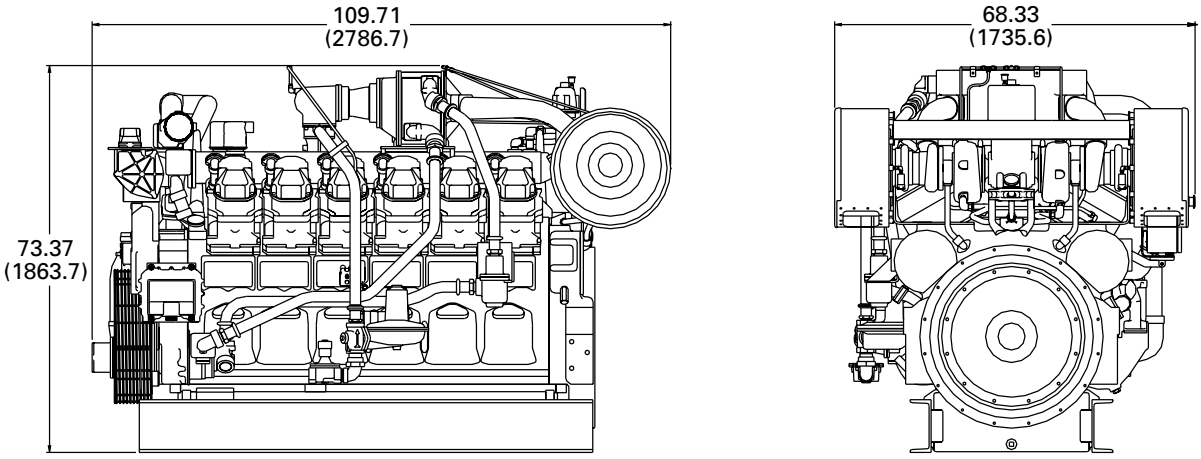
TECHNICAL DATA

G3512 Gas Petroleum Engine — 1200-1400 rpm

		DM5382-00	DM0150-04	DM5118-01	DM5120-01
Arrangement Number		LA2032 with AFRC PA4936 w/o AFRC	LA2032 with AFRC PA4936 w/o AFRC	LA2033 with AFRC PA5320 w/o AFRC	LA2033 with AFRC PA5320 w/o AFRC
Engine Power					
@ 100% Load	bhp (bkW)	860 (642)	810 (604)	945 (705)	1004 (749)
@ 75% Load	bhp (bkW)	645 (481)	607 (453)	709 (529)	753 (562)
Engine Speed	rpm	**1200**	**1200**	**1400**	**1400**
SCAC Temperature	°F (°C)	130 (54)	130 (54)	130 (54)	130 (54)
Compression Ratio		8.0:1	8.0:1	8.0:1	8.0:1
Emissions*					
NO_x	g/bhp-hr	1.5	2.0	2.0	1.5
CO	g/bhp-hr	1.7	1.6	1.8	1.9
Total Hydrocarbons	g/bhp-hr	3.2	3.1	3.1	3.3
Fuel Consumption					
@ 100% Load	Btu/bhp-hr (MJ/bkW-hr)	7,461 (10.56)	7,407 (10.48)	7,570 (10.71)	7,393 (10.46)
@ 75% Load	Btu/bhp-hr (MJ/bkW-hr)	7,834 (11.08)	7,598 (10.75)	7,859 (11.12)	7,548 (10.68)
Heat Balance					
Heat Rejection to Jacket Water					
@ 100% Load	Btu/min (bkW)	26,568 (467)	31,392 (552)	34,008 (598)	34,520 (607)
@ 75% Load	Btu/min (bkW)	26,310 (463)	26,729 (470)	31,506 (554)	28,151 (495)
Heat Rejection to Aftercooler					
@ 100% Load	Btu/min (bkW)	6,372 (112)	4,606 (81)	6,483 (114)	7,848 (138)
@ 75% Load	Btu/min (bkW)	3,346 (59)	2,900 (51)	3,583 (63)	4,720 (83)
Heat Rejection to Exhaust					
@ 100% Load	Btu/min (bkW)	29,636 (521)	25,933 (456)	34,406 (605)	34,520 (607)
@ 75% Load	Btu/min (bkW)	19,969 (351)	18,483 (325)	24,170 (425)	26,388 (464)
Exhaust System					
Exhaust Gas Flow Rate					
@ 100% Load	cfm (m^3/min)	4,894 (138.6)	4,259 (120.6)	5,498 (155.7)	5,597 (158.5)
@ 75% Load	cfm (m^3/min)	3,306 (93.6)	3,058 (86.6)	3,860 (109.3)	4,245 (120.2)
Exhaust Stack Temperature					
@ 100% Load	°F (°C)	797 (425)	801 (427)	860 (460)	820 (438)
@ 75% Load	°F (°C)	785 (418)	786 (419)	865 (463)	820 (438)
Intake System					
Air Inlet Flow Rate					
@ 100% Load	cfm (m^3/min)	1,924 (54.5)	1,667 (47.2)	2,059 (58.3)	2,161 (61.2)
@ 75% Load	cfm (m^3/min)	1,311 (37.1)	1,208 (34.2)	1,434 (40.6)	1,639 (46.4)
Gas Pressure	psi (kPa)	35 (242)	35 (242)	35 (242)	35 (242)

*at 100% load and speed

GAS PETROLEUM ENGINE



DIMENSIONS		
Length	in (mm)	109.71 (2786.7)
Width	in (mm)	68.33 (1735.6)
Height	in (mm)	73.37 (1863.7)
Shipping Weight		
DM5382-00	lb (kg)	14,720 (6677)
DM0150-04	lb (kg)	14,650 (6645)
DM5118-01	lb (kg)	14,500 (6577)
DM5120-01	lb (kg)	14,720 (6677)

Note: General configuration not to be used for installation. See general dimension drawings for detail.

RATING DEFINITIONS AND CONDITIONS

Engine performance is obtained in accordance with SAE J1995, ISO3046/1, BS5514/1, and DIN6271/1 standards.

Transient response data is acquired from an engine/generator combination at normal operating temperature and in accordance with ISO3046/1 standard ambient conditions. Also in accordance with SAE J1995, BS5514/1, and DIN6271/1 standard reference conditions.

Conditions: Power for gas engines is based on fuel having an LHV of 905 Btu/cu ft (33.74 kJ/L) at 29.91 in. Hg (101 kPa) and 59° F (15° C). Fuel rate is based on a cubic meter at 29.61 in. Hg (100 kPa) and 60.1° F (15.6° C). Air flow is based on a cubic foot at 29.61 in. Hg (100 kPa) and 77° F (25° C). Exhaust flow is based on a cubic foot at 29.61 in. Hg (100 kPa) and stack temperature.

TMI Reference No.: DM5382-00, DM0150-04, DM5118-01, DM5120-01
Materials and specifications are subject to change without notice.
The International System of Units (SI) is used in this publication.
LEHW0811 (4-01)
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Outlook

Re: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

From Luma, Johnson (EEC) <johnson.luma@ky.gov>
Date Mon 3/30/2026 3:13 PM
To Rocky Stilwell <rstilwell@dgoc.com>; Chris Boggess <cboggess@slrconsulting.com>

Thank you!

From: Rocky Stilwell <rstilwell@dgoc.com>
Sent: Monday, March 30, 2026 2:23 PM
To: Luma, Johnson (EEC) <johnson.luma@ky.gov>; Chris Boggess <cboggess@slrconsulting.com>
Subject: RE: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

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Diversified Energy Company
rstilwell@dgoc.com
276-245-6057 mobile
Emergency Number 1-877-711-1138

From: Luma, Johnson (EEC) <johnson.luma@ky.gov>
Sent: Monday, March 30, 2026 2:11 PM
To: Chris Boggess <cboggess@slrconsulting.com>
Cc: Rocky Stilwell <rstilwell@dgoc.com>
Subject: Re: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

Good afternoon,
Do you have the manufacturer specification sheet for the Swing Engine installed during October 2021 at the Myra Compressor Station?

810 hp, Caterpillar 3512LE, 4SLB engine with Oxidation Catalyst

Please send it to me this afternoon if you have it.

Thanks,
Johnson Luma,
Environmental Engineer Technologist II
Kentucky Department for Environmental Protection
Division for Air Quality
Permit Review Branch
Chemical Section
300 Sower Blvd., 2nd Floor
Frankfort, KY 40601
Johnson.Luma@ky.gov
(502)-782-1751

From: Luma, Johnson (EEC) <johnson.luma@ky.gov>
Sent: Friday, September 12, 2025 10:49 AM
To: Chris Boggess <cboggess@slrconsulting.com>
Cc: Rocky Stilwell <rstilwell@dgoc.com>
Subject: Re: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

ok, these are just some things that popped up in my mind as I had put the current installation date for the swing engine as October 8, 2021 for the swing engine... But all good.

Thanks,
Johnson Luma, *MSCE, EIT*
Environmental Engineer Technologist II
Kentucky Department for Environmental Protection
Division for Air Quality
Permit Review Branch
Chemical Section
300 Sower Blvd., 2nd Floor
Frankfort, KY 40601
Johnson.Luma@ky.gov
(502)-782-1751

From: Chris Boggess <cboggess@slrconsulting.com>
Sent: Friday, September 12, 2025 9:13 AM
To: Luma, Johnson (EEC) <johnson.luma@ky.gov>
Cc: Rocky Stilwell <rstilwell@dgoc.com>
Subject: RE: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

Luma,

I do not know or have readily available the dates for where the swing engine had been installed prior. My understanding of "existing" comes from 40CFR63.6590(a)(1)(iii) where it states "*For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006".* Since the unit, was manufactured, or commenced construction, in January of 2004, I classified it as existing based on the definition above. I don't think where it was installed prior is pertinent since ZZZZ is specific to the individual engine and not locations where they were installed.

Again, I do not have readily available the manufacture date of Emission Unit 03. Since it had been evaluated in prior application submittals and nothing has changed, I didn't think it needed to be addressed this go around. If we need it, I can certainly figure it out so just let us know

Thanks in advance

Chris

Chris Boggess
Senior Engineer - Air Quality

D 681-205-8967 O 681-205-8949
E cboggess@slrconsulting.com

SLR International Corporation
8 Capitol Street Suite 300, Charleston, WV, United States 25301

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SLR is committed to the responsible and ethical use of relevant technologies including artificial intelligence (AI). If you have any questions or concerns, please contact us directly.

From: Luma, Johnson (EEC) <johnson.luma@ky.gov>
Sent: Thursday, September 11, 2025 4:59 PM
To: Chris Boggess <cboggess@slrconsulting.com>
Cc: Rocky Stilwell <rstilwell@dgoc.com>
Subject: Re: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

Good afternoon Chris,
Will be letting this permit go to Supervisor review tomorrow!
Just wanted to see if you had the initial installation date of the swing engine (Emission Unit 01R (EP05R)) which was installed at the facility on October 8, 2021. I'm assuming it was initially installed elsewhere before the "existing" applicability dates, making it an existing engine.

And also if you had the manufacturing date of Emission Unit 03 (EP07) (Natural Gas Fired Emergency Engine).

Thanks,
Johnson Luma, *MSCE, EIT*
Environmental Engineer Technologist II
Kentucky Department for Environmental Protection
Division for Air Quality
Permit Review Branch
Chemical Section
300 Sower Blvd., 2nd Floor
Frankfort, KY 40601
Johnson.Luma@ky.gov
(502)-782-1751

From: Luma, Johnson (EEC) <johnson.luma@ky.gov>
Sent: Tuesday, August 12, 2025 11:44 AM
To: Chris Boggess <cboggess@slrconsulting.com>
Cc: Rocky Stilwell <rstilwell@dgoc.com>; Ross, Dakota D (EEC) <dakota.ross@ky.gov>
Subject: Re: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

Good morning Chris,
Thank you for the quick responses!
The permit will reflect the area source requirements from Subpart HH, however the RTO is necessary to reduce VOC emissions below major source thresholds to preclude Title V. The permit will likely still contain testing, monitoring, and recordkeeping requirements for the RTO to demonstrate a VOC destruction efficiency to preclude Title V. We will send

you a courtesy pre-draft to review prior to permit issuance. If you have any questions regarding this matter, we can discuss then.

Thanks,
Johnson Luma, *MSCE, EIT*
Environmental Engineer Technologist II
Kentucky Department for Environmental Protection
Division for Air Quality
Permit Review Branch
Chemical Section
300 Sower Blvd., 2nd Floor
Frankfort, KY 40601
Johnson.Luma@ky.gov
(502)-782-1751

From: Chris Boggess <cboggess@slrconsulting.com>
Sent: Wednesday, August 6, 2025 9:01 AM
To: Luma, Johnson (EEC) <johnson.luma@ky.gov>
Cc: Rocky Stilwell <rstilwell@dgoc.com>
Subject: RE: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

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My comments are below in **RED**

Chris Boggess
Senior Engineer - Air Quality

D 681-205-8967 O 681-205-8949
E cboggess@slrconsulting.com

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8 Capitol Street Suite 300, Charleston, WV, United States 25301

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From: Luma, Johnson (EEC) <johnson.luma@ky.gov>
Sent: Tuesday, August 5, 2025 5:08 PM
To: Chris Boggess <cboggess@slrconsulting.com>

Cc: Rocky Stilwell <rstilwell@dgoc.com>
Subject: Questions for AI 44064 - Diversified (Myra Compressor Station) permit Renewal

Good afternoon Chris,
Mr. Stillwell has let me know to reach out to you if I had any questions as I complete the Renewal Permit.

1. For the Engine swing request submitted via the October 8, 2021 502(b)(10) change.
   I have updated the permit to the following. Let me know how it looks! **Looks good to me**

Emission Unit 01R (EP05R) **~~Engine #3~~: 4 Stroke Lean Burn Natural Gas Fired RICE**

Emission Unit	Description
EP05R	**~~Engine #3~~** **Caterpillar 3512LE w/ Oxidation Catalyst** 4-stroke, lean-burn RICE rated at 810 bhp Manufacturing Date: June 8, 2001 Installation Date: October 8, 2021; Fuel: Natural Gas Fuel Consumption: 7,407 Btu/bhp-hr; Non-Remote Operating Rate: 0.0059 mmscf/hr; Stack ID#: 05R; Control Device: Oxidation Catalyst

2. Is a natural gas heat content of 1020 btu/scf or 1208 btu/scf being assumed for the replacement engine? **1020 is the default value found in AP42 where my assumption is that 1208 is site specific value from a gas analysis. Since I did not work on the 2021 swing application, I cannot confirm that its just my assumption so I would say it would probably be best to use the AP42 default of 1020**
3. Was the previous Emission Unit 01 (EP05) Engine fully being removed or just disconnected? **The engine was removed so that the swing could be set in its place**

4. Can you confirm that the engines at the Myra Compressor Station meet or do not meet the definition of Remote Stationary Rice **EU01R is non remote, Remote source status would not apply to EU03 and EU04 because EU03 is under 500 hp and EU04 is subject to 40CFR60 Subpart JJJJ** pursuant to 40 CFR 63.6675 and are non-black start? **All are non black start**

5. Also I got the Insignificant activity section looking like this: **Looks good to me**

	Equipment Description	Construction Date	Generally Applicable Regulation
1.	**TK-1** - Tank 1 (2,000 Gallon, Steel - Oil Tank)	06/11/2003	401 KAR 63:020
2.	**TK-2** - Tank 2 (2,000 Gallon, Steel - Oil Tank)	06/11/2003	401 KAR 63:020
3.	**TK-3** - Tank 3 (8,820 Gallon - Produced Fluids Tank)	06/11/2003	401 KAR 63:020
4.	**TK-4** - Tank 4 (4,000 Gallon - Triethylene Glycol (TEG) Tank)	06/11/2003	401 KAR 63:020
5.	**TK-5** - Tank 5 (1,000 Gallon - Used Oil Tank)	06/11/2003	401 KAR 63:020
6.	**TK-6** - 1000 gallon Antifreeze Storage Tank	06/11/2003	401 KAR 63:020
7.	**IA-7 -** Five (5) Assorted 55 Gallon Oil Day Tanks	06/11/2003	401 KAR 63:020
8.	**TK-10** -1000 Gallon Used Oil Drain Tank	09/19/2019	401 KAR 63:020
9.	**TK-11** - 1000 Gallon Antifreeze Storage Tank	09/19/2019	401 KAR 63:020

6.

7. Please let me know if there are any issues. **I have question for you regarding the status of the dehydration unit and the requirements we submitted to be removed related to testing since the unit complies with the less than 1 tpy benzene exemption. Has that been addressed in this renewal permit preparation?**
8.

Thanks,

Johnson Luma, *MSCE, EIT*
Environmental Engineer Technologist II
Kentucky Department for Environmental Protection
Division for Air Quality
Permit Review Branch
Chemical Section
300 Sower Blvd., 2nd Floor
Frankfort, KY 40601
Johnson.Luma@ky.gov
(502)-782-1751

01/12/2026

Dakota Ross
Environmental Engineer Supervisor – Chemical Section
KDEP – Division for Air Quality
300 Sower Blvd., 2nd Floor
Frankfort, KY 40601

RE: Addendum Calculations and Supporting Information for Myra Renewal Application
Permitted Name: Diversified Midstream LLC
Source Name: Myra Station
Permit No. F-20-020
Source ID: 021-195-00247
Agency Interest: 44064
Pike County, Kentucky

Enclosed with this letter are calculations and supporting documentation Diversified Midstream LLC is requesting be considered to establish potential to emit (PTE) for the dehydration unit below major source thresholds. This information includes the following.

- Monthly/Annual Dehydration Unit Throughput Records (2021-2025)
- Promax Process Simulation Report Utilizing Updated Maximum Throughput of 15mmscf/d and Maximum Pump Rate of 7.8 gpm for the recently installed Rotor-Tech GS1108 Glycol Pump
- Controlled and Uncontrolled PTE for the Unit

It is also the request of Diversified if this information is accepted as accurate and PTE is determined below major source thresholds that the source testing requirements of the unit be removed from the permit as they are no longer considered necessary with being recognized as an area source of Hazardous Air Pollutants (HAPs). The unit shall maintain compliance with 40 CFR 63, Subpart HH as an area source by

maintaining records demonstrating the actual average emissions of benzene are less than 0.9 Mg/yr (1.0 ton/yr) as specified in 40 CFR 63.774(d)(1).

Feel free to contact me if you have any questions or require further information.

Sincerely,

Jeffrey Stovall

Jeff Stovall
Director – Air
jstovall@dgoc.com

Average Dehydration Unit Throughput (MMSCF/D) - Myra Station

Month	2021	2022	2023	2024	2025
January	**12.682**	**12.078**	**11.500**	**10.866**	**10.502**
February	**12.566**	**12.764**	**11.752**	**11.055**	**10.441**
March	**12.468**	**12.679**	**11.340**	**11.092**	**10.794**
April	**12.731**	**12.465**	**11.342**	**10.839**	**11.188**
May	**12.603**	**12.570**	**11.151**	**11.306**	**11.304**
June	**12.540**	**12.101**	**10.863**	**11.258**	**11.271**
July	**12.354**	**11.420**	**10.973**	**11.170**	**11.418**
August	**11.957**	**11.451**	**10.991**	**11.318**	**11.817**
September	**12.435**	**11.637**	**10.686**	**11.512**	**11.550**
October	**12.088**	**13.154**	**10.703**	**11.504**	**11.777**
November	**12.313**	**12.264**	**11.486**	**11.308**	**11.678**
December	**12.052**	**11.519**	**11.242**	**11.153**	**11.585**
	12.399	**12.175**	**11.169**	**11.199**	**11.277**

Highest Annual Average x 1.2 = 14.88

Maximum Natural Gas Throughput as Determined Per 40 CFR 63.760(a)(1)(i)(B) = 14.88

ProMax Dehydration Emissions Report

Case Name:	Myra Station
File Name:	C:\Users\jholman\OneDrive - Diversified Gas & Oil\Air Compliance\General\ProMax_Dehydration_Tool\2024\File to Use for 2025\Dehy Update for Flare 2025.pmx
Date:	
Description:	

Dry Gas Flow Rate	14.93	MMSCFD
Dry Gas Water Content	12.16	lb/MMSCF
Glycol Circulation Rate	7.80	sgpm
Glycol Circulation Ratio	3.60	gal/lb
Annual Operating Hours	8760	hrs

INPUT SUMMARY:

Feed Stream Specifications

Fraction of Water Saturaton (%)	100.00
Water Content (lbm/MMSCF)	208.75
Temperature (°F)	84.00
Pressure (psig)	122.00
Flow Rate (MMSCFD)	15.00

Lean Glycol Specifications

Glycol Circulation Rate (sgpm)	7.80

Regenerator Specifications

Reboiler Temperature (°F)	400.000
Overhead Vapors	To Control Device
Is Reflux Coil Present?	No

Flash Tank Specifications

Is Flash Tank Present?	Flash Tank Present
Temperature (°F)	140.00
Pressure (psig)	55.00
Flash Gas	To Flare

Stripping Gas Specifications

Nitrogen (scfm)	Not In Use
Dry gas (scfm)	Not In Use

Kimray Pump Specifications	
Type	Electric/Pneumatic
Gas Injection Volume Ratio (scfm/gpm)	0.000

Methanol Specifications	
Is Methanol Present?	Not Present in Feed
MeOH Feed Mass Fraction (ppm)	0.00

BTEX Condenser Specifications	
Temperature (°F)	Not In Use
Pressure (psig)	Not In Use
BTEX Emissions	To Flare

General Specifications	
Atmospheric Pressure (psia)	14.400
Flash Gas Flare Destruction Efficiency (%)	98.000
Regenerator Flare Destruction Efficiency (%)	98.000

Feed Composition Data (mol %)	
Carbon Dioxide	0.11
Hydrogen Sulfide	0.00
Nitrogen	0.53
Methane	77.77
Ethane	14.70
Propane	4.83
i-Butane	0.37
n-Butane	1.13
i-Pentane	0.19
n-Pentane	0.24
Cyclopentane	0.01
n-Hexane	0.06
Cyclohexane	0.01
n-Heptane	0.02
Methylcyclohexane	0.01
2,2,4-Trimethylpentane	0.00
Benzene	0.00
Toluene	0.00
Ethylbenzene	0.00
o-Xylene	0.00
m-Xylene	0.00
p-Xylene	0.00
Triethylene Glycol	0.00
Ethylene Glycol	0.00
Water	0.00
Methanol	0.00
O2	0.00
SO2	0.00
Total	100.00

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Carbon Dioxide	58.09	1394.20	254.44
Hydrogen Sulfide	0.00	0.00	0.00
Nitrogen	573.88	13773.07	2513.58
Methane	0.02	0.40	0.07
Ethane	0.04	1.02	0.19
Propane	0.05	1.18	0.22
i-Butane	0.01	0.18	0.03
n-Butane	0.04	0.87	0.16
i-Pentane	0.01	0.30	0.06
n-Pentane	0.02	0.48	0.09
Cyclopentane	0.01	0.12	0.02
n-Hexane	0.01	0.29	0.05
Cyclohexane	0.01	0.21	0.04
n-Heptane	0.01	0.21	0.04
Methylcyclohexane	0.01	0.34	0.06
2,2,4-Trimethylpentane	0.00	0.00	0.00
Benzene	0.01	0.25	0.05
Toluene	0.03	0.64	0.12
Ethylbenzene	0.00	0.07	0.01
o-Xylene	0.03	0.77	0.14
m-Xylene	0.00	0.00	0.00
p-Xylene	0.00	0.00	0.00
Triethylene Glycol	0.14	3.31	0.60
Ethylene Glycol	0.00	0.00	0.00
Water	149.27	3582.45	653.80
Methanol	0.00	0.00	0.00
O2	111.01	2664.13	486.20
SO2	0.00	0.00	0.00
Total Emissions	892.69	21424.49	3909.97
Total HC Emissions	0.44	10.64	1.94
Total VOC Emissions	0.38	9.22	1.68
Total HAP Emissions	0.08	2.02	0.37
Total GHG Emissions	58.11	1394.61	254.52

UNCONTROLLED REGENERATOR EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Carbon Dioxide	0.10	2.29	0.42
Hydrogen Sulfide	0.00	0.00	0.00
Nitrogen	0.00	0.02	0.00
Methane	0.84	20.21	3.69
Ethane	2.12	50.89	9.29
Propane	2.47	59.20	10.80
i-Butane	0.37	8.82	1.61
n-Butane	1.81	43.54	7.95
i-Pentane	0.64	15.24	2.78
n-Pentane	0.99	23.76	4.34
Cyclopentane	0.25	6.08	1.11
n-Hexane	0.60	14.39	2.63
Cyclohexane	0.44	10.61	1.94
n-Heptane	0.43	10.32	1.88
Methylcyclohexane	0.71	17.01	3.10
2,2,4-Trimethylpentane	0.00	0.00	0.00
Benzene	0.53	12.62	2.30
Toluene	1.33	31.81	5.81
Ethylbenzene	0.14	3.48	0.63
o-Xylene	1.61	38.64	7.05
m-Xylene	0.00	0.00	0.00
p-Xylene	0.00	0.00	0.00
Triethylene Glycol	6.89	165.42	30.19
Ethylene Glycol	0.00	0.00	0.00
Water	122.29	2935.04	535.64
Methanol	0.00	0.00	0.00
O2	0.00	0.00	0.00
SO2	0.00	0.00	0.00
Total Emissions	144.56	3469.38	633.16
Total HC Emissions	22.17	532.04	97.10
Total VOC Emissions	19.21	460.94	84.12
Total HAP Emissions	4.21	100.94	18.42
Total GHG Emissions	0.94	22.50	4.11

CONTROLLED FLASH TANK EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Carbon Dioxide	8.64	207.36	37.84
Hydrogen Sulfide	0.00	0.00	0.00
Nitrogen	103.06	2473.49	451.41
Methane	0.02	0.59	0.11
Ethane	0.02	0.43	0.08
Propane	0.01	0.26	0.05
i-Butane	0.00	0.03	0.01
n-Butane	0.00	0.09	0.02
i-Pentane	0.00	0.02	0.00
n-Pentane	0.00	0.03	0.01
Cyclopentane	0.00	0.00	0.00
n-Hexane	0.00	0.01	0.00
Cyclohexane	0.00	0.00	0.00
n-Heptane	0.00	0.00	0.00
Methylcyclohexane	0.00	0.00	0.00
2,2,4-Trimethylpentane	0.00	0.00	0.00
Benzene	0.00	0.00	0.00
Toluene	0.00	0.00	0.00
Ethylbenzene	0.00	0.00	0.00
o-Xylene	0.00	0.00	0.00
m-Xylene	0.00	0.00	0.00
p-Xylene	0.00	0.00	0.00
Triethylene Glycol	0.00	0.00	0.00
Ethylene Glycol	0.00	0.00	0.00
Water	5.74	137.86	25.16
Methanol	0.00	0.00	0.00
O2	19.93	478.43	87.31
SO2	0.00	0.00	0.00
Total Emissions	137.44	3298.60	601.99
Total HC Emissions	0.06	1.47	0.27
Total VOC Emissions	0.02	0.45	0.08
Total HAP Emissions	0.00	0.01	0.00
Total GHG Emissions	8.66	207.95	37.95

UNCONTROLLED FLASH TANK OFF GAS

Component	lbs/hr	lbs/day	tons/yr
Carbon Dioxide	0.01	0.35	0.06
Hydrogen Sulfide	0.00	0.00	0.00
Nitrogen	0.00	0.11	0.02
Methane	1.23	29.54	5.39
Ethane	0.89	21.32	3.89
Propane	0.54	12.92	2.36
i-Butane	0.06	1.42	0.26
n-Butane	0.20	4.73	0.86
i-Pentane	0.04	1.05	0.19
n-Pentane	0.06	1.37	0.25
Cyclopentane	0.00	0.08	0.02
n-Hexane	0.02	0.42	0.08
Cyclohexane	0.00	0.10	0.02
n-Heptane	0.01	0.17	0.03
Methylcyclohexane	0.01	0.14	0.03
2,2,4-Trimethylpentane	0.00	0.00	0.00
Benzene	0.00	0.02	0.00
Toluene	0.00	0.03	0.01
Ethylbenzene	0.00	0.00	0.00
o-Xylene	0.00	0.02	0.00
m-Xylene	0.00	0.00	0.00
p-Xylene	0.00	0.00	0.00
Triethylene Glycol	0.00	0.00	0.00
Ethylene Glycol	0.00	0.00	0.00
Water	0.02	0.40	0.07
Methanol	0.00	0.00	0.00
O2	0.00	0.00	0.00
SO2	0.00	0.00	0.00
Total Emissions	3.09	74.20	13.54
Total HC Emissions	3.06	73.34	13.39
Total VOC Emissions	0.94	22.48	4.10
Total HAP Emissions	0.02	0.49	0.09
Total GHG Emissions	1.25	29.90	5.46

COMBINED REGENERATOR VENT/FLASH GAS EMISSIONS

Component	lbs/hr	lbs/day	tons/yr
Carbon Dioxide	66.73	1601.56	292.28
Hydrogen Sulfide	0.00	0.00	0.00
Nitrogen	676.94	16246.55	2965.00
Methane	0.04	0.99	0.18
Ethane	0.06	1.44	0.26
Propane	0.06	1.44	0.26
i-Butane	0.01	0.20	0.04
n-Butane	0.04	0.97	0.18
i-Pentane	0.01	0.33	0.06
n-Pentane	0.02	0.50	0.09
Cyclopentane	0.01	0.12	0.02
n-Hexane	0.01	0.30	0.05
Cyclohexane	0.01	0.21	0.04
n-Heptane	0.01	0.21	0.04
Methylcyclohexane	0.01	0.34	0.06
2,2,4-Trimethylpentane	0.00	0.00	0.00
Benzene	0.01	0.25	0.05
Toluene	0.03	0.64	0.12
Ethylbenzene	0.00	0.07	0.01
o-Xylene	0.03	0.77	0.14
m-Xylene	0.00	0.00	0.00
p-Xylene	0.00	0.00	0.00
Triethylene Glycol	0.14	3.31	0.60
Ethylene Glycol	0.00	0.00	0.00
Water	155.01	3720.31	678.96
Methanol	0.00	0.00	0.00
O2	130.94	3142.55	573.52
SO2	0.00	0.00	0.00
Total Emissions	1030.13	24723.08	4511.96
Total HC Emissions	0.50	12.11	2.21
Total VOC Emissions	0.40	9.67	1.76
Total HAP Emissions	0.08	2.03	0.37
Total GHG Emissions	66.77	1602.55	292.47

EQUIPMENT REPORTS:

BTEX CONDENSER

Condenser Outlet Temperature:	0.00	deg. F
Condenser Pressure:	14.10	psia
Condenser Duty:	0.00	MMBTU/hr
Hydrocarbon Recovery:	0.00	bbls/day
Produced Water:	0.00	bbls/day
VOC Control Efficiency:	0.00	%
HAP Control Efficiency:	0.00	%
BTEX Control Efficiency:	0.00	%
Dissolved Hydrocarbons in Water:	0.00	mg/L

Component	Emitted (wt. %)	Condensed (wt. %)
Carbon Dioxide	0.00	0.00
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.00	0.00
Methane	0.00	0.00
Ethane	0.00	0.00
Propane	0.00	0.00
i-Butane	0.00	0.00
n-Butane	0.00	0.00
i-Pentane	0.00	0.00
n-Pentane	0.00	0.00
Cyclopentane	0.00	0.00
n-Hexane	0.00	0.00
Cyclohexane	0.00	0.00
n-Heptane	0.00	0.00
Methylcyclohexane	0.00	0.00
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.00	0.00
Toluene	0.00	0.00
Ethylbenzene	0.00	0.00
o-Xylene	0.00	0.00
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.00	0.00
Ethylene Glycol	0.00	0.00
Water	0.00	0.00
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00

ABSORBER

Absorber Stages:	3.00	
Dry Gas Dew Point:	12.16	lb H2O/MMSCF
Temperature:	94.00	deg. F
Pressure:	141.40	psia
Dry Gas Flow Rate:	14.93	MMSCFD
TEG Losses with Dry Gas:	0.05	lb/hr
Wet Gas Water Content:	208.75	lb H2O/MMSCF
Lean Glycol Recirc. Ratio:	3.60	gal/lb H2O

Component	In Dry Gas (%)	Absorbed in Glycol (%)
Carbon Dioxide	99.87	0.13
Hydrogen Sulfide	-	-
Nitrogen	100.00	0.00
Methane	99.99	0.01
Ethane	99.96	0.04
Propane	99.91	0.09
i-Butane	99.88	0.12
n-Butane	99.81	0.19
i-Pentane	99.70	0.30
n-Pentane	99.63	0.37
Cyclopentane	98.24	1.76
n-Hexane	99.30	0.70
Cyclohexane	97.43	2.57
n-Heptane	98.47	1.53
Methylcyclohexane	96.71	3.29
2,2,4-Trimethylpentane	-	-
Benzene	82.10	17.90
Toluene	65.12	34.88
Ethylbenzene	43.84	56.16
o-Xylene	29.26	70.74
m-Xylene	-	-
p-Xylene	-	-
Triethylene Glycol	0.00	100.00
Ethylene Glycol	-	-
Water	4.50	95.50
Methanol	-	-
O2	-	-
SO2	-	-

FLASH TANK

	Flash Temperature:	140 deg. F
	Flash Pressure:	55 psig
Component	Flashed (wt. %)	Left in Glycol (wt. %)
Carbon Dioxide	13.43	86.57
Hydrogen Sulfide	0.00	0.00
Nitrogen	85.04	14.96
Methane	59.38	40.62
Ethane	29.52	70.48
Propane	17.92	82.08
i-Butane	13.85	86.15
n-Butane	9.79	90.21
i-Pentane	6.45	93.55
n-Pentane	5.46	94.54
Cyclopentane	1.38	98.62
n-Hexane	2.80	97.20
Cyclohexane	0.98	99.02
n-Heptane	1.64	98.36
Methylcyclohexane	0.80	99.20
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.19	99.81
Toluene	0.10	99.90
Ethylbenzene	0.06	99.94
o-Xylene	0.04	99.96
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.00	100.00
Ethylene Glycol	0.00	0.00
Water	0.01	99.99
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00

REGENERATOR

Component	Recovered in Glycol (%)	Distilled Overhead (%)
Carbon Dioxide	0.00	100.00
Hydrogen Sulfide	-	-
Nitrogen	0.00	100.00
Methane	0.00	100.00
Ethane	0.00	100.00
Propane	0.00	100.00
i-Butane	0.00	100.00
n-Butane	0.00	100.00
i-Pentane	0.00	100.00
n-Pentane	0.00	100.00
Cyclopentane	0.00	100.00
n-Hexane	0.00	100.00
Cyclohexane	0.01	99.99
n-Heptane	0.00	100.00
Methylcyclohexane	0.01	99.99
2,2,4-Trimethylpentane	-	-
Benzene	0.18	99.82
Toluene	0.77	99.23
Ethylbenzene	2.72	97.28
o-Xylene	5.58	94.42
m-Xylene	-	-
p-Xylene	-	-
Triethylene Glycol	99.84	0.16
Ethylene Glycol	-	-
Water	23.82	76.18
Methanol	-	-
O2	-	-
SO2	-	-

STREAM REPORTS:

WET GAS STREAM

Temperature:	84.00	deg F
Pressure:	136.40	psia
Flow Rate:	15.00	MMSCFD

Component	Conc. (mol%)	Mass Flow (lb/h)
Carbon Dioxide	0.11	81.76
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.53	245.19
Methane	77.43	20452.29
Ethane	14.63	7245.14
Propane	4.81	3493.72
i-Butane	0.37	354.51
n-Butane	1.13	1078.84
i-Pentane	0.19	223.87
n-Pentane	0.24	280.68
Cyclopentane	0.01	14.60
n-Hexane	0.06	88.49
Cyclohexane	0.01	17.39
n-Heptane	0.02	28.65
Methylcyclohexane	0.01	21.71
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.00	2.95
Toluene	0.00	3.82
Ethylbenzene	0.00	0.26
o-Xylene	0.00	2.32
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.00	0.00
Ethylene Glycol	0.00	0.00
Water	0.44	129.87
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	100.00	33766.07

DRY GAS STREAM

Temperature:	92.33	deg F
Pressure:	131.40	psia
Flow Rate:	14.93	MMSCFD

Component	Conc. (mol%)	Mass Flow (lb/h)
Carbon Dioxide	0.11	81.65
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.53	245.18
Methane	77.76	20450.22
Ethane	14.69	7242.14
Propane	4.83	3490.71
i-Butane	0.37	354.09
n-Butane	1.13	1076.83
i-Pentane	0.19	223.19
n-Pentane	0.24	279.64
Cyclopentane	0.01	14.34
n-Hexane	0.06	87.87
Cyclohexane	0.01	16.95
n-Heptane	0.02	28.21
Methylcyclohexane	0.01	21.00
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.00	2.42
Toluene	0.00	2.50
Ethylbenzene	0.00	0.12
o-Xylene	0.00	0.71
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.00	0.05
Ethylene Glycol	0.00	0.00
Water	0.03	7.57
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	100.00	33625.37

LEAN GLYCOL STREAM

Temperature:	94.00 deg F		
Pressure:	141.40 psia		
Flow Rate:	7.80 sgpm		
Component		Conc. (wt%)	Mass Flow (lb/h)
	Carbon Dioxide	0.00	0.00
	Hydrogen Sulfide	0.00	0.00
	Nitrogen	0.00	0.00
	Methane	0.00	0.00
	Ethane	0.00	0.00
	Propane	0.00	0.00
	i-Butane	0.00	0.00
	n-Butane	0.00	0.00
	i-Pentane	0.00	0.00
	n-Pentane	0.00	0.00
	Cyclopentane	0.00	0.00
	n-Hexane	0.00	0.00
	Cyclohexane	0.00	0.00
	n-Heptane	0.00	0.00
	Methylcyclohexane	0.00	0.00
	2,2,4-Trimethylpentane	0.00	0.00
	Benzene	0.00	0.00
	Toluene	0.00	0.01
	Ethylbenzene	0.00	0.00
	o-Xylene	0.00	0.10
	m-Xylene	0.00	0.00
	p-Xylene	0.00	0.00
	Triethylene Glycol	99.13	4364.11
	Ethylene Glycol	0.00	0.00
	Water	0.87	38.25
	Methanol	0.00	0.00
	O2	0.00	0.00
	SO2	0.00	0.00
	Total Components	100.00	4402.47

RICH GLYCOL STREAM

Temperature:	91.20	deg F
Pressure:	136.40	psia
Flow Rate:	8.12	sgpm

Component	Conc. (wt%)	Mass Flow (lb/h)
Carbon Dioxide	0.00	0.11
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.00	0.01
Methane	0.05	2.07
Ethane	0.07	3.01
Propane	0.07	3.01
i-Butane	0.01	0.43
n-Butane	0.04	2.01
i-Pentane	0.01	0.68
n-Pentane	0.02	1.05
Cyclopentane	0.01	0.26
n-Hexane	0.01	0.62
Cyclohexane	0.01	0.45
n-Heptane	0.01	0.44
Methylcyclohexane	0.02	0.71
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.01	0.53
Toluene	0.03	1.34
Ethylbenzene	0.00	0.15
o-Xylene	0.04	1.71
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	96.06	4364.06
Ethylene Glycol	0.00	0.00
Water	3.53	160.55
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	100.00	4543.17

FLASH TANK OFF GAS STREAM

Temperature:	140.00	deg F
Pressure:	69.40	psia
Flow Rate:	47.88	scfh

Component	Conc. (mol%)	Mass Flow (lb/h)
Carbon Dioxide	0.27	0.01
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.13	0.00
Methane	60.81	1.23
Ethane	23.42	0.89
Propane	9.68	0.54
i-Butane	0.81	0.06
n-Butane	2.69	0.20
i-Pentane	0.48	0.04
n-Pentane	0.63	0.06
Cyclopentane	0.04	0.00
n-Hexane	0.16	0.02
Cyclohexane	0.04	0.00
n-Heptane	0.06	0.01
Methylcyclohexane	0.05	0.01
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.01	0.00
Toluene	0.01	0.00
Ethylbenzene	0.00	0.00
o-Xylene	0.01	0.00
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.00	0.00
Ethylene Glycol	0.00	0.00
Water	0.73	0.02
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	100.00	3.09

FLASH TANK GLYCOL STREAM

Temperature:	140.00	deg F
Pressure:	69.40	psia
Flow Rate:	8.10	sgpm

Component	Conc. (wt%)	Mass Flow (lb/h)
Carbon Dioxide	0.00	0.10
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.00	0.00
Methane	0.02	0.84
Ethane	0.05	2.12
Propane	0.05	2.47
i-Butane	0.01	0.37
n-Butane	0.04	1.81
i-Pentane	0.01	0.64
n-Pentane	0.02	0.99
Cyclopentane	0.01	0.25
n-Hexane	0.01	0.60
Cyclohexane	0.01	0.44
n-Heptane	0.01	0.43
Methylcyclohexane	0.02	0.71
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.01	0.53
Toluene	0.03	1.34
Ethylbenzene	0.00	0.15
o-Xylene	0.04	1.71
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	96.12	4364.06
Ethylene Glycol	0.00	0.00
Water	3.54	160.54
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	100.00	4540.08

REGENERATOR OVERHEADS STREAM

Temperature:	299.65	deg F
Pressure:	14.10	psia
Flow Rate:	2709.66	scfh

Component	Conc. (mol%)	Mass Flow (lb/h)
Carbon Dioxide	0.03	0.10
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.00	0.00
Methane	0.74	0.84
Ethane	0.99	2.12
Propane	0.78	2.47
i-Butane	0.09	0.37
n-Butane	0.44	1.81
i-Pentane	0.12	0.64
n-Pentane	0.19	0.99
Cyclopentane	0.05	0.25
n-Hexane	0.10	0.60
Cyclohexane	0.07	0.44
n-Heptane	0.06	0.43
Methylcyclohexane	0.10	0.71
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.09	0.53
Toluene	0.20	1.33
Ethylbenzene	0.02	0.14
o-Xylene	0.21	1.61
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.64	6.89
Ethylene Glycol	0.00	0.00
Water	95.07	122.29
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	100.00	144.56

BTEX CONDENSER VENT GAS STREAM

Temperature:	0.00	deg F
Pressure:	14.10	psia
Flow Rate:	0.00	scfh

Component	Conc. (mol%)	Mass Flow (lb/h)
Carbon Dioxide	0.00	0.00
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.00	0.00
Methane	0.00	0.00
Ethane	0.00	0.00
Propane	0.00	0.00
i-Butane	0.00	0.00
n-Butane	0.00	0.00
i-Pentane	0.00	0.00
n-Pentane	0.00	0.00
Cyclopentane	0.00	0.00
n-Hexane	0.00	0.00
Cyclohexane	0.00	0.00
n-Heptane	0.00	0.00
Methylcyclohexane	0.00	0.00
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.00	0.00
Toluene	0.00	0.00
Ethylbenzene	0.00	0.00
o-Xylene	0.00	0.00
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.00	0.00
Ethylene Glycol	0.00	0.00
Water	0.00	0.00
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	0.00	0.00

BTEX CONDENSER RECOVERED OIL STREAM

Temperature:	120.00	deg F
Pressure:	14.10	psia
Flow Rate:	0.00	sgpm

Component	Conc. (mol%)	Mass Flow (lb/h)
Carbon Dioxide	0.00	0.00
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.00	0.00
Methane	0.00	0.00
Ethane	0.00	0.00
Propane	0.00	0.00
i-Butane	0.00	0.00
n-Butane	0.00	0.00
i-Pentane	0.00	0.00
n-Pentane	0.00	0.00
Cyclopentane	0.00	0.00
n-Hexane	0.00	0.00
Cyclohexane	0.00	0.00
n-Heptane	0.00	0.00
Methylcyclohexane	0.00	0.00
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.00	0.00
Toluene	0.00	0.00
Ethylbenzene	0.00	0.00
o-Xylene	0.00	0.00
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.00	0.00
Ethylene Glycol	0.00	0.00
Water	0.00	0.00
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	0.00	0.00

BTEX CONDENSER PRODUCED WATER STREAM

Temperature:	deg F	
Pressure:	psia	
Flow Rate:	0.00 sgpm	

Component	Conc. (mol%)	Mass Flow (lb/h)
Carbon Dioxide	0.00	0.00
Hydrogen Sulfide	0.00	0.00
Nitrogen	0.00	0.00
Methane	0.00	0.00
Ethane	0.00	0.00
Propane	0.00	0.00
i-Butane	0.00	0.00
n-Butane	0.00	0.00
i-Pentane	0.00	0.00
n-Pentane	0.00	0.00
Cyclopentane	0.00	0.00
n-Hexane	0.00	0.00
Cyclohexane	0.00	0.00
n-Heptane	0.00	0.00
Methylcyclohexane	0.00	0.00
2,2,4-Trimethylpentane	0.00	0.00
Benzene	0.00	0.00
Toluene	0.00	0.00
Ethylbenzene	0.00	0.00
o-Xylene	0.00	0.00
m-Xylene	0.00	0.00
p-Xylene	0.00	0.00
Triethylene Glycol	0.00	0.00
Ethylene Glycol	0.00	0.00
Water	0.00	0.00
Methanol	0.00	0.00
O2	0.00	0.00
SO2	0.00	0.00
Total Components	0.00	0.00

Table 1. Dehydration Unit Still Vent Emissions (Controlled)
NATCO Custom System w/ Thermal Oxidizer
Diversified Midstream LLC - Myra Station

Source	PTE (lb/hr)	PTE (lb/day)	PTE[(1)] (tons/yr)
Criteria Pollutants			
VOC	0.402	9.644	1.760
Hazardous Air Pollutants			
Benzene	0.011	0.274	0.050
Toluene	0.027	0.658	0.120
Ethylbenzene	0.002	0.055	0.010
Xylenes	0.032	0.767	0.140
n-Hexane	0.011	0.274	0.050
Total HAP	0.084	2.027	**0.370**
Greenhouse Gas Emissions			
CO_2	66.73	1601.53	292.28
CH_4	0.04	0.99	0.18
N_2O	-	-	-
CO_2e[(a)]	67.76	25.66	5.50

Calculations:

EMISSION INPUTS	
Maximum Dehy Rating (MMscf/d) =	15.0
TEG Pump Rate (gpm) =	7.80
Pressure (psig) =	122.0
Temperature (F) =	84.0
Wet Gas Water Content (lb H2O/mmscf) =	12.2
Dry Gas Water Content (lb H2O/mmscf) =	7.0
Flash Tank Pressure (psig) =	55.0
Flash Tank Temperature (F) =	140.0
Hours of Operation =	8760

(a) CO_2 equivalent = [(CO_2 emissions)*(GWP_{CO2})]+[(CH_4 emissions)*(GWP_{CH4})]+[(N_2O emissions)*(GWP_{N2O})]

Global Warming Potential (GWP)

CO_2	1	(2)
CH_4	25	(2)
N_2O	298	(2)

Notes:

(1) Current PTE emissions based on most recent wet gas analysis and are calculated utilizing Promax Process Simulation and reflect the controlled regenerator vent emissions

(2) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-2

Table 2. Dehydration Unit Still Vent Emissions (Uncontrolled)
NATCO Custom System w/ Thermal Oxidizer
Diversified Midstream LLC - Myra Station

Source	PTE (lb/hr)	PTE (lb/day)	PTE[(1)] (tons/yr)
Criteria Pollutants			
VOC	20.142	483.397	88.220
Hazardous Air Pollutants			
Benzene	0.525	12.603	2.300
Toluene	1.329	31.890	5.820
Ethylbenzene	0.144	3.452	0.630
Xylenes	1.610	38.630	7.050
n-Hexane	0.619	14.849	2.710
Total HAP	4.226	101.425	**18.510**
Greenhouse Gas Emissions			
CO_2	0.11	2.63	0.48
CH_4	2.07	49.75	9.08
N_2O	-	-	-
CO_2e[(a)]	51.94	1244.84	228.00

Calculations:

EMISSION INPUTS	
Maximum Dehy Rating (MMscf/d) =	15.0
TEG Pump Rate (gpm) =	7.80
Pressure (psig) =	122.0
Temperature (F) =	84.0
Wet Gas Water Content (lb H2O/mmscf) =	12.2
Dry Gas Water Content (lb H2O/mmscf) =	7.0
Flash Tank Pressure (psig) =	55.0
Flash Tank Temperature (F) =	140.0
Hours of Operation =	**8760**

(a) CO_2 equivalent = [(CO_2 emissions)*(GWP_{CO2})]+[(CH_4 emissions)*(GWP_{CH4})]+[(N_2O emissions)*(GWP_{N2O})]

Global Warming Potential (GWP)

CO_2	1	(2)
CH_4	25	(2)
N_2O	298	(2)

Notes:

(1) Current PTE emissions based on most recent wet gas analysis and are calculated utilizing Promax Process Simulation and reflect the uncontrolled regenerator vent emissions

(2) Global Warming Potentials obtained from 40 CFR 98, Subpart A, Table A-2