



5/14/2015

Certified Mail

Kelli Cox
PDC Energy - Cole Pad
1775 Sherman Street, Suite 3000
Denver, CO 80203

No	TOXIC REVIEW
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MODELING SUBMITTED
No	SYNTHETIC MINOR TO AVOID TITLE V
No	FEDERALLY ENFORCABLE PTIO (FEPTIO)
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 0630005049
Permit Number: P0118690
Permit Type: Initial Installation
County: Guernsey

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install and Operate (PTIO) which will allow you to install, modify, and/or operate the described emissions unit(s) in the manner indicated in the permit. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

How to appeal this permit

The issuance of this PTIO is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
77 South High Street, 17th Floor
Columbus, OH 43215

How to save money, reduce pollution and reduce energy consumption

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: www.ohioairquality.org/clean_air

How to give us feedback on your permitting experience

Please complete a survey at www.epa.ohio.gov/survey.aspx and give us feedback on your permitting experience. We value your opinion.

How to get an electronic copy of your permit

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Ohio EPA DAPC, Southeast District Office at (740)385-8501 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,



Erica R. Engel-Ishida, Manager
Permit Issuance and Data Management Section, DAPC

Cc: Ohio EPA-SEDO



FINAL

**Division of Air Pollution Control
Permit-to-Install and Operate
for
PDC Energy - Cole Pad**

Facility ID:	0630005049
Permit Number:	P0118690
Permit Type:	Initial Installation
Issued:	5/14/2015
Effective:	5/14/2015
Expiration:	5/14/2025



Division of Air Pollution Control
Permit-to-Install and Operate
for
PDC Energy - Cole Pad

Table of Contents

Authorization	1
A. Standard Terms and Conditions	3
1. What does this permit-to-install and operate ("PTIO") allow me to do?.....	4
2. Who is responsible for complying with this permit?	4
3. What records must I keep under this permit?	4
4. What are my permit fees and when do I pay them?.....	4
5. When does my PTIO expire, and when do I need to submit my renewal application?	4
6. What happens to this permit if my project is delayed or I do not install or modify my source?	5
7. What reports must I submit under this permit?	5
8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?	5
9. What are my obligations when I perform scheduled maintenance on air pollution control equipment? ...	5
10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?	6
11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?	6
12. What happens if one or more emissions units operated under this permit is/are shut down permanently?	6
13. Can I transfer this permit to a new owner or operator?.....	7
14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?	7
15. What happens if a portion of this permit is determined to be invalid?	7
B. Facility-Wide Terms and Conditions.....	8
C. Emissions Unit Terms and Conditions	11
1. J001 Truck Loading	12
2. P001, P004 Flares	17
3. P002 Dehydration Unit.....	22
4. P801 Equipment Leaks.....	27
5. T001 Storage Tanks.....	33



Final Permit-to-Install and Operate
PDC Energy - Cole Pad
Permit Number: P0118690
Facility ID: 0630005049
Effective Date: 5/14/2015

Authorization

Facility ID: 0630005049
Application Number(s): A0053038, A0053377, A0053411, A0053427, A0053432, A0053453
Permit Number: P0118690
Permit Description: PDC Energy is developing their Cole Pad in Wills Township, Guernsey County, Ohio. PDC has obtained permits for four new horizontal wells (Wells 1H, 2H, 3H and 4H). The new horizontal wells will each produce into their own Gas Production Unit (GPU), which includes a 1MMBtu/hr indirect heater. Produced gas goes down pipeline and the remaining oil/water stream is sent to the VRT and then the gunbarrel tanks for final separation. Condensate and produced water are sent to the condensate and produced water storage tanks.
Permit Type: Initial Installation
Permit Fee: \$2,550.00
Issue Date: 5/14/2015
Effective Date: 5/14/2015
Expiration Date: 5/14/2025
Permit Evaluation Report (PER) Annual Date: Jan 1 - Dec 31, Due Feb 15

This document constitutes issuance to:

PDC Energy - Cole Pad
NE corner of Silverleaf Ln and Wings Ln
Wills Twp., OH 43778

of a Permit-to-Install and Operate for the emissions unit(s) identified on the following page.

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Southeast District Office
2195 Front Street
Logan, OH 43138
(740)385-8501

The above named entity is hereby granted this Permit-to-Install and Operate for the air contaminant source(s) (emissions unit(s)) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the described emissions unit(s) will operate in compliance with applicable State and federal laws and regulations.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency


Craig W. Butler
Director



Authorization (continued)

Permit Number: P0118690
Permit Description: PDC Energy is developing their Cole Pad in Wills Township, Guernsey County, Ohio. PDC has obtained permits for four new horizontal wells (Wells 1H, 2H,3H and 4H). The new horizontal wells will each produce into their own Gas Production Unit (GPU), which includes a 1MMBtu/hr indirect heater. Produced gas goes down pipeline and the remaining oil/water stream is sent to the VRT and then the gunbarrel tanks for final separation. Condensate and produced water are sent to the condensate and produced water storage tanks.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

Emissions Unit ID:	J001
Company Equipment ID:	Truck Loading vent to flare
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P001
Company Equipment ID:	5.7 MMBtu Flare
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P002
Company Equipment ID:	Dehydration Unit
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P004
Company Equipment ID:	flare
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P801
Company Equipment ID:	leaks
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	T001
Company Equipment ID:	Tanks
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable



Final Permit-to-Install and Operate
PDC Energy - Cole Pad
Permit Number: P0118690
Facility ID: 0630005049
Effective Date: 5/14/2015

A. Standard Terms and Conditions



1. What does this permit-to-install and operate ("PTIO") allow me to do?

This permit allows you to install and operate the emissions unit(s) identified in this PTIO. You must install and operate the unit(s) in accordance with the application you submitted and all the terms and conditions contained in this PTIO, including emission limits and those terms that ensure compliance with the emission limits (for example, operating, recordkeeping and monitoring requirements).

2. Who is responsible for complying with this permit?

The person identified on the "Authorization" page, above, is responsible for complying with this permit until the permit is revoked, terminated, or transferred. "Person" means a person, firm, corporation, association, or partnership. The words "you," "your," or "permittee" refer to the "person" identified on the "Authorization" page above.

The permit applies only to the emissions unit(s) identified in the permit. If you install or modify any other equipment that requires an air permit, you must apply for an additional PTIO(s) for these sources.

3. What records must I keep under this permit?

You must keep all records required by this permit, including monitoring data, test results, strip-chart recordings, calibration data, maintenance records, and any other record required by this permit for five years from the date the record was created. You can keep these records electronically, provided they can be made available to Ohio EPA during an inspection at the facility. Failure to make requested records available to Ohio EPA upon request is a violation of this permit requirement.

4. What are my permit fees and when do I pay them?

There are two fees associated with permitted air contaminant sources in Ohio:

- PTIO fee. This one-time fee is based on a fee schedule in accordance with Ohio Revised Code (ORC) section 3745.11, or based on a time and materials charge for permit application review and permit processing if required by the Director.

You will be sent an invoice for this fee after you receive this PTIO and payment is due within 30 days of the invoice date. You are required to pay the fee for this PTIO even if you do not install or modify your operations as authorized by this permit.

- Annual emissions fee. Ohio EPA will assess a separate fee based on the total annual emissions from your facility. You self-report your emissions in accordance with Ohio Administrative Code (OAC) Chapter 3745-78. This fee assessed is based on a fee schedule in ORC section 3745.11 and funds Ohio EPA's permit compliance oversight activities. For facilities that are permitted as synthetic minor sources, the fee schedule is adjusted annually for inflation. Ohio EPA will notify you when it is time to report your emissions and to pay your annual emission fees.

5. When does my PTIO expire, and when do I need to submit my renewal application?

This permit expires on the date identified at the beginning of this permit document (see "Authorization" page above) and you must submit a renewal application to renew the permit. Ohio EPA will send a renewal notice to you approximately six months prior to the expiration date of this permit. However, it is



very important that you submit a complete renewal permit application (postmarked prior to expiration of this permit) even if you do not receive the renewal notice.

If a complete renewal application is submitted before the expiration date, Ohio EPA considers this a timely application for purposes of ORC section 119.06, and you are authorized to continue operating the emissions unit(s) covered by this permit beyond the expiration date of this permit until final action is taken by Ohio EPA on the renewal application.

6. What happens to this permit if my project is delayed or I do not install or modify my source?

This PTIO expires 18 months after the issue date identified on the "Authorization" page above unless otherwise specified if you have not (1) started constructing the new or modified emission sources identified in this permit, or (2) entered into a binding contract to undertake such construction. This deadline can be extended by up to 12 months, provided you apply to Ohio EPA for this extension within a reasonable time before the 18-month period has ended and you can show good cause for any such extension.

7. What reports must I submit under this permit?

An annual permit evaluation report (PER) is required in addition to any malfunction reporting required by OAC rule 3745-15-06 or other specific rule-based reporting requirement identified in this permit. Your PER due date is identified in the Authorization section of this permit.

8. If I am required to obtain a Title V operating permit in the future, what happens to the operating provisions and PER obligations under this permit?

If you are required to obtain a Title V permit under OAC Chapter 3745-77 in the future, the permit-to-operate portion of this permit will be superseded by the issued Title V permit. From the effective date of the Title V permit forward, this PTIO will effectively become a PTI (permit-to-install) in accordance with OAC rule 3745-31-02(B). The following terms and conditions of this permit will no longer be applicable after issuance of the Title V permit: Section B, Term 1.b) and Section C, for each emissions unit, Term a)(2).

The PER requirements in this permit remain effective until the date the Title V permit is issued and is effective, and cease to apply after the effective date of the Title V permit. The final PER obligation will cover operations up to the effective date of the Title V permit and must be submitted on or before the submission deadline identified in this permit on the last day prior to the effective date of the Title V permit.

9. What are my obligations when I perform scheduled maintenance on air pollution control equipment?

You must perform scheduled maintenance of air pollution control equipment in accordance with OAC rule 3745-15-06(A). If scheduled maintenance requires shutting down or bypassing any air pollution control equipment, you must also shut down the emissions unit(s) served by the air pollution control equipment during maintenance, unless the conditions of OAC rule 3745-15-06(A)(3) are met. Any emissions that exceed permitted amount(s) under this permit (unless specifically exempted by rule) must be reported as deviations in the annual permit evaluation report (PER), including nonexempt excess emissions that occur during approved scheduled maintenance.



10. Do I have to report malfunctions of emissions units or air pollution control equipment? If so, how must I report?

If you have a reportable malfunction of any emissions unit(s) or any associated air pollution control system, you must report this to the [DO/LAA] in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

If you have a malfunction, but determine that it is not a reportable malfunction under OAC rule 3745-15-06(B), it is recommended that you maintain records associated with control equipment breakdown or process upsets. Although it is not a requirement of this permit, Ohio EPA recommends that you maintain records for non-reportable malfunctions.

11. Can Ohio EPA or my local air agency inspect the facility where the emission unit(s) is/are located?

Yes. Under Ohio law, the Director or his authorized representative may inspect the facility, conduct tests, examine records or reports to determine compliance with air pollution laws and regulations and the terms and conditions of this permit. You must provide, within a reasonable time, any information Ohio EPA requests either verbally or in writing.

12. What happens if one or more emissions units operated under this permit is/are shut down permanently?

Ohio EPA can terminate the permit terms associated with any permanently shut down emissions unit. "Shut down" means the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31.

You should notify Ohio EPA of any emissions unit that is permanently shut down by submitting a certification that identifies the date on which the emissions unit was permanently shut down. The certification must be submitted by an authorized official from the facility. You cannot continue to operate an emission unit once the certification has been submitted to Ohio EPA by the authorized official.

You must comply with all recordkeeping and reporting for any permanently shut down emissions unit in accordance with the provisions of the permit, regulations or laws that were enforceable during the period of operation, such as the requirement to submit a PER, air fee emission report, or malfunction report. You must also keep all records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, for at least five years from the date the record was generated.

Again, you cannot resume operation of any emissions unit certified by the authorized official as being permanently shut down without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.



13. Can I transfer this permit to a new owner or operator?

You can transfer this permit to a new owner or operator. If you transfer the permit, you must follow the procedures in OAC Chapter 3745-31, including notifying Ohio EPA or the local air agency of the change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

14. Does compliance with this permit constitute compliance with OAC rule 3745-15-07, "air pollution nuisance"?

This permit and OAC rule 3745-15-07 prohibit operation of the air contaminant source(s) regulated under this permit in a manner that causes a nuisance. Ohio EPA can require additional controls or modification of the requirements of this permit through enforcement orders or judicial enforcement action if, upon investigation, Ohio EPA determines existing operations are causing a nuisance.

15. What happens if a portion of this permit is determined to be invalid?

If a portion of this permit is determined to be invalid, the remainder of the terms and conditions remain valid and enforceable. The exception is where the enforceability of terms and conditions are dependent on the term or condition that was declared invalid.



Final Permit-to-Install and Operate
PDC Energy - Cole Pad
Permit Number: P0118690
Facility ID: 0630005049
Effective Date: 5/14/2015

B. Facility-Wide Terms and Conditions



1. This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - a) For the purpose of a permit-to-install document, the facility-wide terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - (1) B.2.
 - b) For the purpose of a permit-to-operate document, the facility-wide terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - (1) None.
2. Modeling to demonstrate compliance with the "Toxic Air Contaminant Statute," ORC 3704.03(F)(4)(b), for this project were not necessary because for the emissions units not exempted from modeling per Ohio EPA Engineering Guide #69, maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 TPY when controlled. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified PTIO prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials or use of new materials that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new PTIO.
3. The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal, or they may be mailed as a hard copy to the appropriate district office or local air agency.
4. The permittee shall submit an annual PER to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The PER shall cover a reporting period of no more than 12 months for each air contaminant source identified in this permit.
5. This facility is subject to 40 CFR Part 60, Subpart OOOO. The complete NSPS requirements, including the NSPS General Provisions, may be accessed via the internet from the e-CFR website <http://ecfr.gpoaccess.gov> or by contacting the appropriate Ohio EPA District office or local air agency.
6. This facility is subject to 40 CFR Part 63, Subpart HH. The dehydration units at this facility are exempt per 63.764(e)(ii) from the requirements of 63.764(d)(2) because actual average emissions of benzene from the glycol dehydration unit process venting to the atmosphere are less than 0.90 Mg/yr, as determined by the procedures specified in 63.772(b)(2) of 40 CFR 63, Subpart HH. The complete MACT requirements, including the MACT General Provisions may be accessed via the internet from the e-CFR website <http://ecfr.gpoaccess.gov> or by contacting the appropriate Ohio EPA District office of local air agency.
7. Within six months of startup of the facility, the permittee shall collect and analyze a representative sample of the gas and liquids at the inlet of the dehydration unit and condensate tanks. The permittee shall use the results of the analysis to recalculate the emissions from the various components at the facility utilizing the GRI-GLYCalc or other standard software/emission factors. The permittee shall then compare the results of the revised calculations with the calculations submitted with the air pollution control permit application(s). If the emissions results are significantly different from those results



submitted with the application, then the applicant shall submit the revised calculations to the appropriate District Office or Local Air Authority. The applicant should provide all input data used, the basis for each input value used, and the results provided by the program.

8. The facility must comply with the Used Oil Management Standards of OAC Chapter 3745-279.

9. Abbreviations throughout are as follows:

Pollutants

CO carbon monoxide
VOC volatile organic carbon

Units

TPY tons per year
lb pound
gal gallon
bbl barrel
MM million
Btu British thermal units
Mg megagram
d day
hr hour
m month
yr year

Regulations

OAC Ohio Administrative Code
ORC Ohio Revised Code
CFR Code of Federal Regulations
e-CFR Electronic Code of Federal Regulation
BAT Best Available Technology
MACT Maximum Achievable Control Technology
NSPS New Source Performance Standards
NESHAP National Emission Standards for Hazardous Air Pollutants

General

PTE potential-to-emit
PTIO permit-to-install-and-operate
PER permit evaluation report
SIP State Implementation Plan
VRC vapor recovery compressor
VRT vapor recovery tower
EF emission factor
EU emissions unit
SEDO Southeast District Office



Final Permit-to-Install and Operate
PDC Energy - Cole Pad
Permit Number: P0118690
Facility ID: 0630005049
Effective Date: 5/14/2015

C. Emissions Unit Terms and Conditions



1. J001 Truck Loading

Operations, Property, and/or Equipment Description:

Truck loading of condensate (255,500 bbl/yr maximum) and produced water (109,500 bbl/yr maximum), controlled by flare with $\geq 98\%$ overall control efficiency

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective June 30, 2008	VOC emissions shall not exceed 0.04 tons/m as a rolling, 12-month average. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective June 30, 2008	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOC emissions from this air contaminant source since the calculated annual emission rate is < 10 TPY due to the voluntary restriction from OAC rule 3745-31-05(E). See b)(2)b. below.
c.	OAC rule 3745-31-05(E), as effective June 30, 2008	VOC emissions shall not exceed 0.44 TPY.



- (2) Additional Terms and Conditions
 - a. This BAT emissions limit applies until US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.
 - b. These requirements apply once US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.
- c) Operational Restrictions
 - (1) The permittee shall operate the flare at all times for the control of VOC emissions and shall maintain the flare in accordance with the manufacturer's recommendations, instructions, and/or operating manual(s), with any modification deemed necessary by the permittee.
 - (2) In the event the flare is not operating in accordance with the manufacturer's recommendations, instructions, or operating manual, with any modifications deemed necessary by the permittee, the control device shall be expeditiously repaired or otherwise returned to these documented operating conditions.
 - (3) Prior to connecting the condensate transfer line(s) from the condensate tank to the condensate tank truck, the permittee shall inspect all fittings, valves, gaskets, and fasteners that will be used during the transfer to ensure they are in proper condition (i.e., not corroded, torn, worn, stripped, or otherwise damaged) and will result in vapor tight connections.
 - (4) During the loading of condensate from the condensate tank to the condensate tank truck, the permittee shall continually monitor the transfer equipment, the condensate tank, and the tank truck for any leaks through visual, olfactory, or other observations. If any leak is detected, loading of the condensate shall cease until the leaking component has been repaired.
 - (5) The permittee shall not permit condensate to be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation.
- d) Monitoring and/or Recordkeeping Requirements
 - (1) The permittee shall maintain records of the throughput of the emissions unit, in bbl/d.
 - (2) The permittee shall maintain documentation of the manufacturer's recommendations, instructions, or operating manuals for the flare, along with documentation of any modifications deemed necessary by the permittee. These documents shall be maintained at the facility and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.
 - (3) The permittee shall conduct periodic inspections of flare to determine whether it is operating in accordance with the manufacturer's recommendations, instructions, or operating manuals with any modifications deemed necessary by the permittee or operator. These inspections shall be performed at a frequency that shall be based upon the recommendation of the manufacturer and the permittee shall maintain a copy of the



manufacturer's recommended inspection frequency, and it shall be made available to the Ohio EPA upon request.

- (4) In addition to the recommended periodic inspections, not less than once each calendar year, the permittee shall conduct a comprehensive inspection of the flare while the emissions unit is shut down and perform any needed maintenance and repair to ensure that it is operated in accordance with the manufacturer's recommendations.
- (5) The permittee shall document each inspection (periodic and annual) of the flare and shall maintain the following information:
 - a. the date of the inspection;
 - b. a description of each/any problem identified and the date it was corrected;
 - c. a description of any maintenance and repairs performed; and
 - d. the name of the person who performed the inspection.

These records, and any necessary maintenance or repairs that were completed, shall be maintained at the facility for not less than five years from the date the inspection and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.

- (6) The permittee shall maintain records that document any time periods when the flare was not in service when the emissions unit(s) was/were in operation, as well as a record of all operations during which the flare was not operated according to the manufacturer's recommendations with any documented modifications made by the permittee. These records shall be maintained for a period of not less than five years and shall be made available to the Ohio EPA upon request.
- (7) The permittee shall maintain records of the following information for condensate transfer operations:
 - a. the tons of VOC/m;
 - b. the date any leak was detected;
 - c. the findings of the inspection for the leak, which shall indicate the location, nature, and severity of the leak;
 - d. the leak detection method;
 - e. the corrective action(s) taken to repair each leak and the date of final repair; and
 - f. the inspector's name and signature.

These records shall be maintained for a period of not less than five years and shall be made available to the Ohio EPA upon request.



- (8) The permittee shall properly install, operate, and maintain a thermocouple or equivalent device to monitor and record the presence of a flame when organic vapors are being routed to the flare, including periods of startup and shutdown. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. These records shall be maintained for a period of no less than five years. These records can be kept electronically, provided they can be made available to the appropriate Ohio EPA District Office or local air agency.

- e) Reporting Requirements
 - (1) See B.3.-4.

- f) Testing Requirements
 - (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Design Efficiency:
 - B. VOC emissions shall not exceed 0.04 tons/m as a rolling, 12-month average.
 - Applicable Compliance Methods:

Loading emissions may be calculated using the "Loading Loss Equation" from AP-42, Section 5.2, for Transportation and Marketing of Petroleum Liquids, which is based on multiplying a loading loss factor (L^*) by the annual petroleum liquid throughput in gallons per year, as follows:

$$*L = 12.46 \text{ SPM/T}$$

For controlled loading, the VOC emissions shall be calculated by multiplying a controlled loading loss factor (L_C) by the rolling, 12-month summation of the throughput of condensate and petroleum liquids (in gallons) and dividing by 2,000 lb/ton.

$$L_C = 12.46 \text{ SPM/T} [1 - \text{Efficiency}/100]$$

Where:

Capture Efficiency = 99%

Destruction Efficiency = 99%

Control Efficiency = 99% x 99% = 98%

Where:

L = loading loss, pounds per 1,000 gallons loaded (Q)



S = saturation factor

P = vapor pressure of liquid loaded, pounds per square inch absolute

M = molecular weight of vapor

T = temperature of bulk liquid ($^{\circ}$ R)

g) Miscellaneous Requirements

(1) None.



2. P001, P004 Flares

Operations, Property, and/or Equipment Description:

EU ID	Operations, Property, and/or Equipment Description
P001	5.7 MMBtu/hr maximum enclosed flare with $\geq 98\%$ overall control efficiency of VOC emissions, controlling truck loading emissions directly (J001) and dehydration (P002) and storage tanks (T001) emissions when the VRC is down; pilot operates 8,760 hr/yr
P004	5.7 MMBtu/hr maximum enclosed flare with $\geq 98\%$ overall control efficiency of VOC emissions, controlling truck loading emissions directly (J001) and dehydration (P002) and storage tanks (T001) emissions when the VRC is down; pilot operates 8,760 hr/yr

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective June 30, 2008	CO emissions from this emissions unit shall not exceed 0.39 tons/m as a rolling, 12-month average. Install and operate a flare that is designed to achieve $\geq 98\%$ VOC overall control efficiency. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(ii), as effective June 30, 2008	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the CO and VOC emissions from this air



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		contaminant source since the PTE is < 10 TPY. See b)(2)b. below.

(2) Additional Terms and Conditions

- a. This BAT emissions limit applies until US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.
- b. These requirements apply once US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.

c) Operational Restrictions

- (1) The permittee shall burn only natural gas in this emissions unit.
- (2) The flare or combustion device shall be operated with a flame present at all times when gases are vented to it.
- (3) An automatic flame ignition system shall be installed to meet one of the following requirements:
 - a. If using a pilot flame ignition system, the presence of a pilot flame shall be monitored using a thermocouple or other equivalent device to detect the presence of a flame. A pilot flame shall be maintained at all times in the flare's pilot light burner. If the pilot flame goes out and does not relight, then an alarm shall sound; or
 - b. If using an electric arc ignition system, the arcing of the electric arc ignition system shall pulse continually and a device shall be installed and used to continuously monitor the electric arc ignition system.
- (4) The flare, its auto ignition system, and its recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain records of the number of scf/m to the flare.
- (2) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (3) The permittee shall maintain documentation of the manufacturer's recommendations, instructions, or operating manuals for the flare, along with documentation of any modifications deemed necessary by the permittee. These documents shall be



maintained at the facility and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.

- (4) The permittee shall conduct periodic inspections of the flare to determine whether it is operating in accordance with the manufacturer's recommendations, instructions, or operating manuals with any modifications deemed necessary by the permittee or operator. These inspections shall be performed at a frequency that shall be based upon the recommendation of the manufacturer and the permittee shall maintain a copy of the manufacturer's recommended inspection frequency, and it shall be made available to Ohio EPA upon request.
- (5) In addition to the recommended periodic inspections, not less than once each calendar year, the permittee shall conduct a comprehensive inspection of the flare while the emissions unit is shut down and perform any needed maintenance and repair to ensure that it is operated in accordance with the manufacturer's recommendations.
- (6) The permittee shall document each inspection (periodic and annual) of the flare and shall maintain the following information:
 - a. the date of the inspection;
 - b. a description of each/any problem identified and the date it was corrected;
 - c. a description of any maintenance and repairs performed; and
 - d. the name of the person who performed the inspection.

These records, and any necessary maintenance or repairs that were completed, shall be maintained at the facility for not less than five years from the date the inspection and shall be made available to the appropriate Ohio EPA District Office or local air upon request.

- (7) The permittee shall maintain records that document any time periods when the flare was not in service when the emissions unit(s) was/were in operation, as well as a record of all operations during which the flare were not operated according to the manufacturer's recommendations with any documented modifications made by the permittee. These records shall be maintained for a period of not less than five years and shall be made available to Ohio EPA upon request.
- (8) The permittee shall:
 - a. continuously monitor the presence of the flame;
 - b. record all periods during which the automatic flare ignition system (pilot flame or electronic arc ignition system) or thermocouple was not working and gas was being vented to the flare/combustion device; and
 - c. record all periods of time during which gas was being vented to the flare/combustion device and there was no flame



- (9) The permittee shall properly install, operate, and maintain a thermocouple or equivalent device to monitor and record the presence of a flame when organic vapors are being routed to the flare, including periods of startup and shutdown. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. These records shall be maintained for a period of no less than five years. These records can be kept electronically, provided they can be made available to the appropriate Ohio EPA District Office or local air agency.

e) Reporting Requirements

- (1) The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
- (2) See B.3.-4.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emissions Limitation:

CO emissions from this emissions unit shall not exceed 0.39tons/m as a rolling, 12-month average.

Applicable Compliance Method:

The emissions limitation was derived by the following calculations based on the emissions factors and other information in the permittee's application:

$$\frac{24,966 \text{ MMBtu}}{\text{yr}} * \frac{0.37 \text{ lb CO}}{\text{MMBtu}} * \frac{\text{ton}}{2,000 \text{ lb}} * \frac{\text{yr}}{12 \text{ m rolling}} = 0.39 \frac{\text{tons}}{\text{m rolling 12}}$$

Where:

- 24,966 = maximum annual throughput, including pilot
- 0.37 = EF (AP-42, Table 13.5-1, 1/95)

b. Design Efficiency:

Install and operate a flare that is designed to achieve ≥ 98% VOC overall control efficiency.

Applicable Compliance Method:

Compliance shall be demonstrated by installing and operating a flare with a manufacturer's design efficiency of ≥ 98% overall control efficiency for VOC emissions.



Final Permit-to-Install and Operate

PDC Energy - Cole Pad

Permit Number: P0118690

Facility ID: 0630005049

Effective Date: 5/14/2015

g) Miscellaneous Requirements

(1) None.



3. P002 Dehydration Unit

Operations, Property, and/or Equipment Description:

12 MMscf/d dehydration unit, including a 0.75 MMBtu/hrreboiler heater (permit exempt), regenerator still vent, condenser, and flash tank, where VOC emissions are captured and used for combustion as site fuel or controlled by the VRC, with flares (EUs P001 and P004) for backup, all with ≥ 98% VOC overall control efficiency

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective June 30, 2008	Install and operate a VRC and flare designed to achieve ≥ 98% VOC overall control efficiency. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective June 30, 2008	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOC emissions from this air contaminant source since the calculated annual emission rate is < 10 TPY due to the voluntary restriction from OAC rule 3745-31-05(E). See b)(2)b. below.
c.	OAC rule 3745-31-05(E), as effective June 30, 2008	VOC emissions shall not exceed 0.4 TPY.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		Install and operate a VRC and flare with \geq 98% VOC overall control efficiency.
d.	40 CFR Part 63, Subpart HH (40 CFR 63.760-63.779) [In accordance with 40 CFR 63.760(a)(2)-(3), this emissions unit processes, upgrades, or stores natural gas or hydrocarbon liquids prior to the point of custody transfer from the facility.]	See b)(2)c. below.
e.	40 CFR 63.1-15 (40 CFR 63.764)	Table 2 of Subpart HH of 40 CFR Part 63 shows which parts of the General Provisions in 40 CFR 63.1-15 apply.

(2) Additional Terms and Conditions

- a. This BAT emissions limit applies until US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.
- b. These requirements apply once US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.
- c. The dehydration unit located at this facility is subject to 40 CFR Part 63, Subpart HH, NESHAP from Oil and Natural Gas Production Facilities. The dehydration units at this facility are exempt per 63.764(e)(ii) from the requirements of 63.764(d)(2) because actual average emissions of benzene from the glycol dehydration unit process venting to the atmosphere are less than 0.90 Mg/yr, as determined by the procedures specified in 63.772(b)(2) of 40 CFR 63, Subpart HH.

c) Operational Restrictions

- (1) The permittee shall burn only natural gas in this emissions unit.
- (2) The flare or combustion device shall be operated with a flame present at all times when gases are vented to it.
- (3) An automatic flame ignition system shall be installed to meet one of the following requirements:
 - a. If using a pilot flame ignition system, the presence of a pilot flame shall be monitored using a thermocouple or other equivalent device to detect the presence of a flame. A pilot flame shall be maintained at all times in the flare's pilot light burner. If the pilot flame goes out and does not relight, then an alarm shall sound; or



- b. If using an electric arc ignition system, the arcing of the electric arc ignition system shall pulse continually and a device shall be installed and used to continuously monitor the electric arc ignition system.
- (4) The flare, its auto ignition system, and its recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.
- d) **Monitoring and/or Recordkeeping Requirements**
 - (1) The permittee shall maintain records of the number of scf/d vented to the VRC and/or flare.
 - (2) For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
 - (3) The permittee shall maintain documentation of the manufacturer's recommendations, instructions, or operating manuals for the VRC and flare, along with documentation of any modifications deemed necessary by the permittee. These documents shall be maintained at the facility and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.
 - (4) The permittee shall conduct periodic inspections of the VRC and flare to determine whether it is operating in accordance with the manufacturer's recommendations, instructions, or operating manuals with any modifications deemed necessary by the permittee or operator. These inspections shall be performed at a frequency that shall be based upon the recommendation of the manufacturer and the permittee shall maintain a copy of the manufacturer's recommended inspection frequency, and it shall be made available to Ohio EPA upon request.
 - (5) In addition to the recommended periodic inspections, not less than once each calendar year, the permittee shall conduct a comprehensive inspection of the VRC and flare while the emissions unit is shut down and perform any needed maintenance and repair to ensure that it is operated in accordance with the manufacturer's recommendations.
 - (6) The permittee shall document each inspection (periodic and annual) of the VRC and flare and shall maintain the following information:
 - a. the date of the inspection;
 - b. a description of each/any problem identified and the date it was corrected;
 - c. a description of any maintenance and repairs performed; and
 - d. the name of the person who performed the inspection.

These records, and any necessary maintenance or repairs that were completed, shall be maintained at the facility for not less than five years from the date the inspection and shall be made available to the appropriate Ohio EPA District Office or local air upon request.



- (7) The permittee shall maintain records that document any time periods when the VRC or flare were not in service when the emissions unit(s) was/were in operation, as well as a record of all operations during which the VRC and flare were not operated according to the manufacturer’s recommendations with any documented modifications made by the permittee. These records shall be maintained for a period of not less than five years and shall be made available to Ohio EPA upon request.
- (8) The permittee shall properly install, operate, and maintain a thermocouple or equivalent device to monitor and record the presence of a flame when organic vapors are being routed to the flare, including periods of startup and shutdown. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer’s recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. These records shall be maintained for a period of no less than five years. These records can be kept electronically, provided they can be made available to the appropriate Ohio EPA District Office or local air agency.
- (9) The permittee shall:
 - a. continuously monitor the presence of the flame;
 - b. record all periods during which the automatic flare ignition system (pilot flame or electronic arc ignition system) or thermocouple was not working and gas was being vented to the flare/combustion device; and
 - c. record all periods of time during which gas was being vented to the flare/combustion device and there was no flame
- (10) The permittee shall comply with the applicable monitoring and record keeping requirements of 40 CFR Part 63, Subpart HH, including the following sections:

63.760(a)(1)(ii)	Maintain records of the annual facility natural gas or hydrocarbon liquid throughput for each year.
63.774(d)(1)(ii) and 63.772(b)(2)	Maintain records of the actual average benzene emissions per year as determined in accordance with 63.772(b)(2).

e) Reporting Requirements

- (1) See B.3.-4.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:



a. Design Efficiency:

Install and operate a VRC and flare with $\geq 98\%$ VOC overall control efficiency.

Applicable Compliance Method:

Compliance shall be demonstrated by installing and operating a VRC with engineering design efficiency and a flare with manufacturer's design efficiency, both with $\geq 98\%$ overall control efficiency for VOC emissions as specified in the permittee's application A0053453.

b. Emissions Limit:

VOC emissions shall not exceed 0.4 TPY.

Applicable Compliance Method:

The permittee may determine the VOC emissions (excludes methane and ethane) using ProMax software. Inputs to the model shall be representative of actual operating conditions of the glycol dehydration unit(s) 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).

The VOC emissions limitation is based on a representative wet gas analysis, a maximum glycol circulation rate of 7.5 gal/minute, and a maximum natural gas flow of 12 million scf/d, where VOC emissions are captured and used for combustion as site fuel or controlled by the VRC, with flares for backup, all with $\geq 98\%$ VOC overall control efficiency.

g) Miscellaneous Requirements

(1) None.



4. P801 Equipment Leaks

Operations, Property, and/or Equipment Description:

Equipment leaks

- a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).
 - (1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.
 - a. None.
 - (2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.
 - a. None.
- b) Applicable Emissions Limitations and/or Control Requirements
 - (1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective June 30, 2008	Develop and implement a site-specific leak detection and repair program for ancillary equipment as described in c)(1) below. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective June 30, 2008	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOC emissions from this air contaminant source since the PTE is < 10 TPY. See b)(2)b. below.
c.	OAC rule 3745-31-05(F)	Fugitive VOC emissions from equipment leaks shall not exceed 5.0 TPY.



(2) Additional Terms and Conditions

- a. This BAT emissions limit applies until US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.
- b. These requirements apply once US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.

c) Operational Restrictions

(1) Ancillary Equipment Leak Detection and Repair Program

The permittee shall develop and implement a leak detection and repair program designed to monitor and repair leaks from ancillary equipment covered by this permit, including each pump, compressor, pressure relief device, connector, valve, flange, vent, cover, any bypass in the closed vent system, and each storage vessel. This program shall meet the following requirements:

- a. Leaks shall be detected by the use of either a "Forward Looking Infra Red" (FLIR) camera or an analyzer meeting U.S. EPA Method 21 of 40 CFR Part 60, Appendix A-7.
- b. An initial monitoring shall be completed within 30 days of startup and quarterly thereafter.
- c. Following the initial four consecutive quarters, if less than or equal to 2.0% of the ancillary equipment are determined to be leaking during the most recent quarterly monitoring event, the frequency of monitoring can be reduced to semi-annual.
- d. Following two consecutive semi-annual periods, if less than 2.0% of the ancillary equipment is determined to be leaking during the most recent semi-annual monitoring event, the frequency of the monitoring can be reduced to annual.
- e. If 2.0% or more of the ancillary equipment is determined to be leaking during any one of the semi-annual or annual monitoring events, the frequency of monitoring shall be returned to quarterly.
- f. The program shall require the first attempt at repair within five days of determining a leak.
- g. The program shall require that the leaking component is repaired within 30 days after the leak is detected.
- h. The program shall allow for the delayed repair of a leaking component following the language in 40 CFR 60.5416(c)(5).
- i. The program shall following the Monitoring and Recordkeeping requirements described in d)(2) and (3) below.

- (2) In the event that a leak or defect is detected in the cover, closed vent system, process equipment, or control device, the permittee shall make a first attempt at repair no later



than five days after the leak is detected. Repair shall be completed no later than 30 days after the leak is detected following the language in 40 CFR 60.5416(c)(4). Any delay of repair of a leak or defect shall meet the requirements following the language of 40 CFR 60.5416(c)(5).

d) **Monitoring and/or Recordkeeping Requirements**

(1) The permittee shall perform inspections each day that an operator is at the facility and when the facility is in operation for indications of releases from the pressure relief valves and any olfactory, visual, or auditory indications of equipment leaks. The positive indication of a release or a leak shall be noted in an operations log, along with the following information:

- a. the name of the inspector;
- b. the date and time of the inspection;
- c. the identification of the pressure relief valve that released and/or piece of equipment that leaked;
- d. the estimated or calculated duration of the pressure relief valve release and/or equipment leak and the estimated emission totals; and
- e. any corrective actions taken to minimize or eliminate the release or leak.

(2) **Ancillary Equipment Leak Detection and Repair Program Monitoring and Recordkeeping for Programs Utilizing FLIR Cameras**

- a. Leaks shall be determined by visually observing each ancillary component through the FLIR camera to determine if leaks are visible.
- b. The following information shall be recorded during each leak inspection:
 - i. the name of the inspector;
 - ii. the date and time of the inspection;
 - iii. the identification of any component that was determined to be leaking;
 - iv. the date the first attempt to repair the component was made;
 - v. the reason the repair was delayed following the language found in 40 CFR 60.5416(c)(5);
 - vi. the date the component was repaired and determined to no longer be leaking;
 - vii. the total number of components that are leaking; and
 - viii. the percentage of components leaking, determined as the sum of the number of components for which a leak was detected, divided by the total



number of ancillary components capable of developing a leak, multiplied by 100.

- c. The permittee shall maintain records that demonstrate the FLIR camera is operated and maintained in accordance with the manufacturer's operation and maintenance instructions.
- d. The records from each inspection and the dates each leak is detected and repaired shall be maintained for at least five years and shall be made available to the Director or his representative upon verbal or written request.

(3) Ancillary Equipment Leak Detection and Repair Program Monitoring and Recordkeeping for Programs Utilizing a Method 21 Analyzer

a. Leaks shall be measured by utilizing U.S. EPA Method 21; see 40 CFR Part 60, Appendix A-7. All potential leak interfaces shall be traversed as close to the interface as possible. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm or 10,000 ppm (as applicable) for determining compliance.

b. A component is considered to be leaking if the instrument reading is equal to or greater than:

pressure relief device in gas/vapor service	10,000 ppm
pressure relief device in light liquid service	10,000 ppm
pumps in light liquid service	10,000 ppm
compressor	500 ppm
sampling connection system*	*
open-ended valves or lines**	**
valves in gas/vapor and light liquid service	10,000 ppm
closed vent system	500 ppm
connectors	10,000 ppm
all other ancillary and associated equipment in VOC service	10,000 ppm

* must be equipped with a closed-purge, closed-loop, or closed-vent system

** must be equipped with a cap, blind flange, plug, or a second valve

c. The following information shall be recorded during each leak inspection:

- i. the name of the inspector;
- ii. the date and time of the inspection;



- iii. the identification of any component that was determined to be leaking (company ID and component type (flange, pump, etc.);
 - iv. the date the first attempt to repair the component was made;
 - v. the reason the repair was delayed following the language in 40 CFR 60.5416(c)(5);
 - vi. the date the component was repaired and determined to no longer be leaking;
 - vii. the total number of components that are leaking; and
 - viii. the percentage of components leaking, determined as the sum of the number of components for which a leak was detected, divided by the total number of ancillary components capable of developing a leak, multiplied by 100.
- d. The permittee shall maintain records that demonstrate the Method 21 analyzer is operated and maintained in accordance with the manufacturer's operation and maintenance instructions.
- e. In order to calibrate the analyzer, the following calibration gases shall be used:
- i. zero air, which consists of less than 10 ppm of hydrocarbons in air; and
 - ii. a mixture of air and methane or n-hexane at a concentration of approximately, but less than, 10,000 ppm of methane or n-hexane.
- f. The records from each inspection and the dates each leak is detected and repaired shall be maintained for at least five years and shall be made available to the Director or his representative upon verbal or written request.
- e) Reporting Requirements
- (1) See B.3.-4.
 - (2) Supplement to the PER for the Ancillary Equipment Leak Detection and Repair Program
- For each inspection that occurred during the year, the permittee shall submit the following information with the annual PER from data collected by the ancillary equipment leak detection and repair program:
- a. the date of the inspection;
 - b. the number of components determined to be leaking;
 - c. the company ID and component type (flange, pump, etc.) of each leaking component;
 - d. the total number of components at the site;



- e. the percent of components determined to be leaking;
- f. a list of all components that have not been repaired due to a delay of repair and the reason for the delay; and
- g. a notification indicating if the permittee has changed future inspection frequencies based on the percent of components leaking.

f) Testing Requirements

(1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emissions Limitation:

Fugitive VOC emissions from equipment leaks shall not exceed 5.0 TPY.

Applicable Compliance Method:

Compliance with the fugitive VOC emissions limitation shall be demonstrated by the following calculation based on the emissions factors provided in Table 2-4 of US EPA's Protocol for Equipment Leak Emission Estimates (11/95) for components in gas, light oil, and water/oil service and the information provided in the permittee's application:

$$\left(\sum (\text{component count} * \text{max leak rates} * \text{VOC fraction} * \frac{8,760 \text{ hr}}{\text{yr}} * \frac{1 \text{ ton}}{2,000 \text{ lb}}) \right) \leq 5.0 \text{ TPY}$$

Where:

component counts, max leak rates, and VOC fractions are based on the data provided in the permittee's application.

g) Miscellaneous Requirements

(1) None.



5. T001 Storage Tanks

Operations, Property, and/or Equipment Description:

Gun barrel condensate and water tanks (4 @ 500 bbl), condensate tanks (6 @ 500 bbl), and produced water storage tanks (4 @ 500 bbl) controlled by a VRC with flares as backup (EUs P001 and P004) with ≥ 98% overall control efficiency when the VRC is down

a) This permit document constitutes a permit-to-install issued in accordance with ORC 3704.03(F) and a permit-to-operate issued in accordance with ORC 3704.03(G).

(1) For the purpose of a permit-to-install document, the emissions unit terms and conditions identified below are federally enforceable with the exception of those listed below which are enforceable under state law only.

a. None.

(2) For the purpose of a permit-to-operate document, the emissions unit terms and conditions identified below are enforceable under state law only with the exception of those listed below which are federally enforceable.

a. None.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operation(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures are identified below. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3), as effective June 30, 2008	Install and operate a VRC and flare designed to achieve ≥ 98% VOC overall control efficiency. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective June 30, 2008	The BAT requirements under OAC rule 3745-31-05(A)(3) do not apply to the VOC emissions from this air contaminant source since the calculated annual emission rate is < 10 TPY due to the voluntary restriction from OAC rule 3745-31-05(E). See b)(2)b. below.
c.	OAC rule 3745-31-05(E), as effective June 30, 2008	VOC emissions shall not exceed 1.4 TPY. Install and operate a VRC and flare with ≥



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		98% VOC overall control efficiency.
d.	40 CFR Part 60, Subpart OOOO (60.5360-60.5430) In accordance with 40 CFR, 60.5365(e), this emissions unit is a single storage vessel located in the oil and natural gas production segment, natural gas processing segment, or natural gas transmission and storage segment.	Pursuant to 40 CFR Part 60.5365(e), each storage vessel at this facility has a PTE of less than six TPY and is, therefore, exempt from the requirements of 40 CFR Part 60, Subpart OOOO.
e.	40 CFR Part 60, Subpart A (60.1-60.19)	Table 3 of 40 CFR Part 60, Subpart OOOO listed applicable requirements of 60.1 through 60.19.

(2) Additional Terms and Conditions

- a. This BAT emissions limit applies until US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.
- b. These requirements apply once US EPA approves OAC 3745-31-05(A)(3)(a)(ii) (the < 10 TPY BAT exemption) as part of the Ohio SIP.
- c. The permittee shall calculate the potential for VOC emissions for each single storage vessel (defined in 40 CFR 60.5430) using an accepted model or calculation methodology. Emissions of VOC shall be based on the maximum average daily throughput determined for a 30-day period of production prior to 4/15/14 or 30 days after startup for storage vessels installed after 4/12/2013, i.e., Group 2 storage vessels.

c) Operational Restrictions

- (1) Flash, working, and breathing vapors from the gun barrel condensate and water tanks, condensate tanks, and produced water storage tanks shall be vented to and controlled by the VRC with flares as backup with ≥ 98% overall control efficiency when the VRC is down.
- (2) The permittee shall operate the VRC or flare at all times for the control of VOC emissions and shall maintain the VRC and flare in accordance with the manufacturer's recommendations, instructions, and/or operating manual(s), with any modification deemed necessary by the permittee.
- (3) In the event the VRC or flare is not operating in accordance with the manufacturer's recommendations, instructions, or operating manual, with any modifications deemed necessary by the permittee, the control device shall be expeditiously repaired or otherwise returned to these documented operating conditions.



- (4) The permittee shall install and operate a system to automatically close the shutdown valves for the wells when the VRC and flares are both not operating in order to prevent the tank(s) from uncontrolled venting. This system shall continuously monitor the tank pressure, the liquid level, or both.

d) **Monitoring and/or Recordkeeping Requirements**

- (1) The permittee shall maintain records of the throughput of the emissions unit, in bbl/d.
- (2) The permittee shall maintain documentation of the manufacturer's recommendations, instructions, or operating manuals for the VRC and flare, along with documentation of any modifications deemed necessary by the permittee. These documents shall be maintained at the facility and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.
- (3) The permittee shall conduct periodic inspections of VRC and flare to determine whether it is operating in accordance with the manufacturer's recommendations, instructions, or operating manuals with any modifications deemed necessary by the permittee or operator. These inspections shall be performed at a frequency that shall be based upon the recommendation of the manufacturer and the permittee shall maintain a copy of the manufacturer's recommended inspection frequency, and it shall be made available to the Ohio EPA upon request.
- (4) In addition to the recommended periodic inspections, not less than once each calendar year, the permittee shall conduct a comprehensive inspection of the VRC and flare while the emissions unit is shut down and perform any needed maintenance and repair to ensure that it is operated in accordance with the manufacturer's recommendations.
- (5) The permittee shall document each inspection (periodic and annual) of the VRC and flare and shall maintain the following information:
 - a. the date of the inspection;
 - b. a description of each/any problem identified and the date it was corrected;
 - c. a description of any maintenance and repairs performed; and
 - d. the name of the person who performed the inspection.

These records, and any necessary maintenance or repairs that were completed, shall be maintained at the facility for not less than five years from the date the inspection and shall be made available to the appropriate Ohio EPA District Office or local air agency upon request.

- (6) The permittee shall maintain records that document any time periods when the VRC or flare was not in service when the emissions unit(s) was/were in operation, as well as a record of all operations during which the VRC or flare was not operated according to the manufacturer's recommendations with any documented modifications made by the permittee. These records shall be maintained for a period of not less than five years and shall be made available to the Ohio EPA upon request.



- (7) The permittee shall maintain records of the tank pressure, liquid level, or both as required in 5.c)(4). These records shall be maintained for a period of not less than five years and shall be made available to the Ohio EPA upon request.
- (8) The permittee shall maintain the following records documenting the facility's determination of emissions from each storage vessel:
 - a. the maximum average daily throughput determined for a 30-day period of production prior to 10/15/13 for Group 1 storage vessels and prior to 4/15/14 or 30 days after startup for Group 2 storage vessels;
 - b. the content of each storage vessel;
 - c. the lab analyses, calculations, and process simulation model results documenting the annual emissions from breathing, working, and flashing losses; and

These records shall be maintained for at least 5 years and shall be made available to the Director or his representative upon verbal or written request.

- (9) The permittee shall properly install, operate, and maintain a thermocouple or equivalent device to monitor and record the presence of a flame when organic vapors are being routed to the flare, including periods of startup and shutdown. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s), with any modifications deemed necessary by the permittee. These records shall be maintained for a period of no less than five years. These records can be kept electronically, provided they can be made available to the appropriate Ohio EPA District Office or local air agency.
- e) Reporting Requirements
 - (1) See B.3.-4.
 - f) Testing Requirements
 - (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Design Efficiency:

Install and operate a VRC and flare with $\geq 98\%$ VOC overall control efficiency.

Applicable Compliance Method:

Compliance shall be demonstrated by installing and operating a VRC with engineering design efficiency and a flare with manufacturer's design efficiency, both with $\geq 98\%$ overall control efficiency for VOC emissions as specified in the permittee's application A0053453.



Emissions Limitation:

VOC emissions shall not exceed 1.4 TPY.

Applicable Compliance Method:

Compliance shall be demonstrated by the following calculations based on the emissions factors and other information in the permittee's application:

$$\left[6.63 \frac{lb\ VOC}{hr} + 8.81 \frac{lb\ VOC}{hr} + 0.14 \frac{lb\ VOC}{hr} \right] (1 - 0.98) \left(\frac{8,760\ hr}{yr} \right) \left(\frac{1\ ton}{2,000\ lb} \right) = 1.4\ TPY\ VOC$$

Where:

6.63 = EF gun barrel tanks (AP-42 Section 5.2 within ProMax)

8.81 = EF condensate tanks (AP-42 Section 5.2 within ProMax)

0.14 = EF produced water tanks (AP-42 Section 5.2 within ProMax)

0.98 = overall control efficiency of flare

g) Miscellaneous Requirements

(1) None.