Ohio Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Craig W. Butler, Director

6/9/2016

Certified Mail

No	TOXIC REVIEW
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
Yes	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

Mr. Bruce Bailey
Collinwood BioEnergy, LLC
5755 Granger Road
Ste. 320
Independence, OH 44131

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 1318008759
Permit Number: P0119992
Permit Type: Administrative Modification
County: Cuyahoga

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**
- **What should you do if you notice a spill or environmental emergency?**

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.

What should you do if you notice a spill or environmental emergency?

Any spill or environmental emergency which may endanger human health or the environment should be reported to the Emergency Response 24-HOUR EMERGENCY SPILL HOTLINE toll-free at (800) 282-9378. Report non-emergency complaints to the appropriate district office or local air agency.

If you have any questions regarding your permit, please contact Cleveland Division of Air Quality at (216)664-2297 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,

Michael E. Hopkins, P.E.
Assistant Chief, Permitting Section, DAPC

Cc: CDAQ

FINAL

Division of Air Pollution Control
Permit-to-Install and Operate
for
Collinwood BioEnergy, LLC

Facility ID:	1318008759
Permit Number:	P0119992
Permit Type:	Administrative Modification
Issued:	6/9/2016
Effective:	6/9/2016
Expiration:	9/15/2021

Ohio Environmental Protection Agency

Division of Air Pollution Control
Permit-to-Install and Operate
for
Collinwood BioEnergy, LLC

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 10

1. B001, 1 MW CHPU CAT 3516B 11
2. B002, 0.6 MW CHPU 20
3. B003, 1.6 MM BTU/HR Boiler 31
4. F001, Roadways and Parking Areas 35
5. P001, Emergency Flare 40

Authorization

Facility ID:	1318008759
Application Number(s):	M0003724
Permit Number:	P0119992
Permit Description:	PTIO Administrative Modification to correct engine information and to adjust BAT limits of B001 and B002 to match 40 CFR Part 60, Subpart JJJJ limits.
Permit Type:	Administrative Modification
Permit Fee:	$400.00
Issue Date:	6/9/2016
Effective Date:	6/9/2016
Expiration Date:	9/15/2021

Permit Evaluation Report (PER) Annual Date: Apr 1 - Mar 31, Due May 15

This document constitutes issuance to:

Collinwood BioEnergy, LLC
13500 Aspinwall Avenue
Cleveland, OH 44110

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:

Cleveland Division of Air Quality
2nd Floor
75 Erieview Plaza
Cleveland, OH 44114
(216)664-2297

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: P0119992
Permit Description: PTIO Administrative Modification to correct engine information and to adjust BAT limits of B001 and B002 to match 40 CFR Part 60, Subpart JJJJ limits.

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

Emissions Unit ID:	**B001**
Company Equipment ID:	1 MW CHPU
Superseded Permit Number:	P0107748
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B002**
Company Equipment ID:	0.6 MW CHPU
Superseded Permit Number:	P0107748
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**B003**
Company Equipment ID:	1.6 MM BTU/HR Boiler
Superseded Permit Number:	P0107748
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**F001**
Company Equipment ID:	Roadways and Parking Areas
Superseded Permit Number:	P0114300
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	**P001**
Company Equipment ID:	Emergency Flare
Superseded Permit Number:	P0107748
General Permit Category and Type:	Not Applicable

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 beingpermanently shut down without first applying for and obtaining a permit pursuantto 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.

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) None.

   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. The following emissions units contained in this permit are subject to 40 CFR Part 60, Subpart JJJJ, Standards of Performance for New Stationary Sources: B001 and B002. The complete NSPS requirements, including the Subpart A General Provisions, may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website at http://ecfr.gpoaccess.gov or by contacting the Cleveland Division of Air Quality (CDAQ).

   The permittee must comply with all applicable requirements of 40 CFR Part 60, Subpart JJJJ. The permittee shall also comply with all applicable requirements of 40 CFR Part 60, Subpart A (General Provisions) as identified in Table 3 of 40 CFR Part 60, Subpart JJJJ. Compliance with all applicable requirements shall be achieved by the dates set forth in 40 CFR Part 60, Subpart JJJJ, and Subpart A.

C. Emissions Unit Terms and Conditions

1. B001, 1 MW CHPU CAT 3516B

Operations, Property and/or Equipment Description:

Combined Heat and Power Unit consisting of a 9.7 MMBtu/hr, 4-stroke lean-burn (4SLB), fuel injected reciprocating spark ignition (SI) non-emergency engine fired by natural gas and digester gas, rated 1,475 Hp, powering a 1.3 MW generator. Manufactured 11/2011.

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. d)(6).

(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) ORC 3704.03(T)	The nitrogen oxides (NOx), carbon monoxide (CO), and Volatile Organic Compound (VOC) standards established pursuant to this rule are equivalent to the standards established in 40 CFR Part 60 Subpart JJJJ. Emissions of sulfur dioxide (SO_2) shall not exceed 2.92 lbs/hr and 12.8 tons/yr. See c)(1)-(2).
b.	OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-17-11(B)(5)(b)	Particulate emissions shall not exceed 0.062 pound/million Btu actual heat input.
d.	OAC rule 3745-18-06(G)	Exempt, pursuant to OAC rule 3745-18-06(B). Heat input rated capacity equal to or less than 10 million Btu per hour.
e.	40 CFR Part 60, Subpart JJJJ [In accordance with 40 CFR 60.4230(a)(4)(i), and Table 1 to this Subpart, this emissions unit is a Landfill/Digester gas spark ignition engine greater than or equal to 500 horsepower (HP) and manufactured after 7/1/2010.]	The exhaust emissions from this engine shall not exceed 2.0 gram/horsepower-hour (g/hp-hr) or 150 ppmvd at 15% O_2 of NOx. 5.0 g/hp-hr or 610 ppmvd at 15% O_2 of CO. 1.0 g/hp-hr or 80 ppmvd at 15% O_2 of VOC. See b)(2)a and b)(2)b. below.
f.	40 CFR 60.1 – 19 (40 CFR 60.4246)	Table 3 to Subpart JJJJ of 40 CFR Part 60 – Applicability of Subpart A to Subpart JJJJ shows which parts of the General Provisions in 40 CFR 60.1-19 apply.
g.	40 CFR 63 Subpart ZZZZ 40 CFR 63.6590(c)(1)	A new reconstructed area source operating in compliance with Part 60 Subpart JJJJ is the demonstrations of compliance for 40 CFR 63 Subpart ZZZZ.

(2) Additional Terms and Conditions

a. The non-emergency stationary spark ignition (SI) internal combustion engine (ICE) is subject to and shall be operated in compliance with the requirements of 40 CFR Part 60, Subpart JJJJ, the standards of performance for stationary SI ICE.

b. The non-emergency stationary SI ICE has been or shall be purchased certified by the manufacturer to emission standards as stringent as those identified in 40 CFR 60.4233(e) and found in Table 1 of Part 60, Subpart JJJJ for engines greater than or equal to 1,350 HP and manufactured on or after 7/7/10.

c) Operational Restrictions

(1) The permittee shall burn only natural gas, or digester gas with a minimum heat content of 550 Btu/scf, in this emissions unit.

(2) Digester gas combusted in this emissions unit shall not exceed 500 parts per million on a volume basis (ppm_v) of hydrogen sulfide once a steady system is established in the digester, but not later than six months after seed sludge is initially introduced into the digester. During the commissioning phase the digester gas combusted in this emissions unit shall not exceed 1,000 ppm_v of hydrogen sulfide.

The commissioning phase is the period of time once seed sludge is introduced into the digester until a steady system is established that can be fed the design-case feedstock load on a daily basis.

(3) The permittee shall comply with the applicable requirements under 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4234	Operating and maintaining the unit to achieve the emission standards over the entire life of the unit.
60.4243(b)	Demonstrate compliance.
60.4243(g)	Emissions controls - three-way catalyst and air-fuel ratio controllers.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall perform daily checks, when the emissions unit is in operation firing digester gas and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the color of the emissions;

b. whether the emissions are representative of normal operations;

c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

d. the total duration of any visible emission incident; and

e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the

observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

The permittee may, upon receipt of written approval from Cleveland Division of Air Quality, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

(2) For each day during which the permittee burns a fuel other than natural gas and/or digester fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

(3) The permittee shall maintain monthly records of the natural gas and digester gas fuel usage in this unit in millions of standard cubic feet (MMSCF).

(4) The permittee shall maintain monthly records of the heat content of the digester gas, in Btu/scf.

(5) The permittee shall monitor and record hydrogen sulfide concentrations when operating the emissions unit with digester gas using one of the two following options:

<u>Option 1:</u> Weekly gas detector tube sampling. The accuracy of gas detector tubes is presumed to be ± 10%, unless the permittee is able to demonstrate better accuracy of the detector tubes compared to a certified gas standard. The permittee shall perform gas detector tube monitoring in accordance with the manufacturer's instructions for use of the detector tubes and associated sampling system. Any deviations from the manufacturer's instructions should be recorded with the concentration results of the sampling.

<u>Option 2:</u> Continuous digester gas monitoring system. The permittee may install a sampling and analysis system to continuously monitor and record the H_2S content of the digester gas. The permittee shall properly install, operate, and maintain a continuous digester gas H_2S monitoring device and recorder that measures and records the H_2S concentrations in the digester gas when the emissions unit is in operation, including periods of startup and shutdown. The H_2S monitoring device and recorder shall be capable of satisfying the performance requirements specified in 40 CFR Part 60, Appendix B, Performance Specification 5 and shall be capable of accurately measuring the H_2S concentration. The H_2S monitoring device and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee.

Whenever the monitored value for hydrogen sulfide exceeds the lower limit of the accuracy of the monitoring system as measured by either of the above monitoring

options, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

d. the name(s) of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the hydrogen sulfide concentration below the maximum limit specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

f. a description of the corrective action;

g. the date the corrective action was completed;

h. the date and time the deviation ended;

i. the total period of time (in minutes) during which there was a deviation;

j. hydrogen sulfide readings immediately after the corrective action was implemented; and

k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

(6) Modeling to demonstrate compliance with, the “Toxic Air Contaminant Statute”, ORC 3704.03(F)(4)(b), was not necessary because the emissions unit’s maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install 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 permit to install.

(7) The permittee shall comply with the applicable monitoring and record keeping requirements under 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4243(e)	Emergency operations, special record keeping.
60.4245(a)	Record keeping requirements.
Table 3 to §60.4246	Applicability of General Provisions.

e) Reporting Requirements

(1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

a. The permittee shall identify the following information in the annual PER in accordance with the monitoring and recordkeeping requirements in section d):

i. each day during which a fuel other than natural gas or digester gas was burned in this emissions unit, and the type and quantity of fuel burned;

ii. each month during which digester gas with a minimum heat content less than 550 btu/scf was burned in this emissions unit;

iii. each day during which the digester gas exceeded 500 ppm H_2S after the steady system has been established in the digester, but not later than six months after seed sludge is initially introduced into the digester; or, each day during which the digester gas exceeded 1,000 ppm H_2S during the commissioning phase;

iv. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and

v. any corrective actions taken to minimize or eliminate the visible particulate emissions.

(2) The permittee shall submit reports and such other notifications to the Ohio EPA as are required pursuant to 40 CFR Part 60, Subpart JJJJ, per the following sections:

60.4245(c)	Reporting requirements for initial notifications.
60.4245(d)	Reporting requirements for performance testing.

f) Testing Requirements

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

a. Emissions Limitation:
SO_2 emissions shall not exceed 2.92 lbs/hr and 12.8 TPY.

Applicable Compliance Method:
The permittee shall demonstrate compliance with the lb/hr emission limitation through the required monitoring and recordkeeping in d)(5) and using the following equation:

E = Gross output of engine (mmBtu/hr) * (10^6 Btu/1 mmBtu) * (1/digester gas heat content) * (H_2S $ppm_v/10^6$) * (0.088 lb H_2S/ft^3 H_2S) * (1.88 lb SO_2/lb H_2S) = SO_2 lbs/hr

Where:

E = SO_2 emissions rate, lbs/hr

Digester gas heat content = average heat content of digester gas in Btu/scf from d)(4)

H_2S ppm_v = average concentration of H_2S in digester gas, from d)(5)

Compliance with the annual limitation shall be determined by multiplying the lb/hr emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

If required, compliance with this emission limitation shall be demonstrated based upon emission testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6.

b. Emissions Limitation:
Visible particulate emissions shall not exceed 20% opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:
If required, compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with U.S. EPA Method 9.

c. Emissions Limitation:
0.062 pound particulate emissions per million BTU actual heat input.

Applicable Compliance Method:
If required, compliance with the particulate emissions limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 5, as applicable, of 40 CFR Part 60, Appendix A.

d. Emissions Limitation:
The exhaust emissions from this engine shall not exceed:
2.0 g of NOx/hp-hr or 150 ppmvd at 15% O_2
5.0 g/hp-hr or 610 ppmvd at 15% O_2 of carbon monoxide (CO)
1.0 g VOC/hp-hr or 80 ppmvd at 15% O_2

Applicable Compliance Method:
Compliance with the emission standards shall be demonstrated in accordance with the testing requirements in section f)(2).

(2) The permittee shall conduct, or have conducted, emission testing for these emissions units in accordance with the procedures specified in 40 CFR 60.4244 and the following requirements:

a. The initial performance test on this engine was conducted on December 16, 2015. Subsequent performance testing shall be conducted every 8,760 hours of engine operation or 3 years, whichever comes first.

b. Each performance test conducted shall be conducted within 10% of 100% peak (or the highest achievable) load and according to the requirements in 40 CFR 60.8 and under the specific conditions that are specified by Table 2 of Subpart JJJJ.

c. The following test method(s) shall be employed, in accordance with Table 2 of Subpart JJJJ, to demonstrate compliance with the allowable mass emission rates:

i. Method 1 or 1A of 40 CFR Part 60, Appendix A or ASTM Method D6522-00 to select the sampling port location and the number of traverse points.

ii. Method 2 of 40 CFR Part 60, Appendix A or Method 19 of 40 CFR Part 60, Appendix A to determine the exhaust flowrate of the engine.

iii. Method 3, 3A, or 3B of 40 CFR Part 60, Appendix A or ASTM Method D6522-00 to measure O_2 at the exhaust stack.

iv. Method 4 of 40 CFR Part 60, Appendix A; or Method 320 of 40 CFR Part 63, Appendix A; or ASTM D6348-03 to measure the moisture content at the exhaust stack.

v. Method 10 of 40 CFR Part 60, Appendix A; or Method 320 of 40 CFR Part 63, Appendix A; or ASTM Method D6522-00; or ASTM D 6348-03 to measure CO at the exhaust stack.

vi. Method 25A of 40 CFR Part 60, Appendix A; or Method 18 of 40 CFR Part 60, Appendix A; or ASTM D6348.03 to measure VOC at the exhaust stack.

d. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA (alternative methods allowed per footnote to Table 2 of subpart).Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's refusal to accept the results of the emission test(s).

e. Personnel from the Cleveland Division of Air Quality shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA Northeast District Office.

g) Miscellaneous Requirements

(1) This emissions unit was manufactured and installed in 2011.

(2) Superseded permit P0107748, issued final 9/15/2011.

2. B002, 0.6 MW CHPU

Operations, Property and/or Equipment Description:

Combined Heat and Power Unit consisting of a 6.3 MMBtu/hr, lean-burn, reciprocating spark ignition (SI), non-emergency engine fired by natural gas and digester gas, rated 939 Hp, powering a 0.6 MW generator.

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. d)(7).

(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) Ohio Revised Code (ORC) 3704.03(T)	The Volatile Organic Compound (VOC) standards established pursuant to this rule are equivalent to the standards established in 40 CFR Part 60 Subpart JJJJ.Emissions of carbon monoxide (CO) shall not exceed 3.0 g/hp-hr (gram per horsepower–hour) and 15.83 tons/year.
b.	OAC rule 3745-31-05(A)(3), as effective 6/30/2008	Emissions of nitrogen oxides (NOx) shall not exceed 1.0 g/hp-hr (gram per horsepower–hour) and 5.28 tons/year. Emissions of sulfur dioxide shall not exceed 1.90 lbs/hr and 4.85 tons/year. See b)(2)a. and c)(1)-(2) below.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 6/30/2008	The Best Available Technology (BAT) requirements listed under OAC rule 3745-31-05(A)(3) do not apply to the NOx and SO_2 emissions from this air contaminant source since the uncontrolled potential to emit is less than 10 tons per year taking into account the legally and practically enforceable operational restrictions established in c)(1) below. See b)(2)b. below.
d.	OAC rule 3745-31-05(E)	Emissions of nitrogen oxides (NOx) shall not exceed 1.0 g/hp-hr (gram per horsepower–hour) and 5.28 tons/year. Emissions of carbon monoxide (CO) shall not exceed 3.0 g/hp-hr (gram per horsepower–hour) and 15.83 tons/year. Emissions of sulfur dioxide shall not exceed 1.90 lbs/hr and 4.85 tons/year. Maximum annual operating hours for this emissions unit shall not exceed 5,110 hours.
e.	OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule. See b)(2)e. below.
f.	OAC rule 3745-17-11(B)(5)(b)	Particulate emissions shall not exceed 0.062 pound per million Btu actual heat input. See b)(2)e. below.
g.	OAC rule 3745-18-06(G)	Exempt, pursuant to OAC rule 3745-18-06(B). Heat input rated capacity equal to or less than 10 million Btu per hour.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
h.	40 CFR Part 60, Subpart JJJJ [In accordance with 40 CFR 60.4230(a)(4)(i), and Table 1 to this Subpart, this emissions unit is a Landfill/Digester gas spark ignition engine greater than or equal to 500 horsepower (HP) and manufactured after 7/1/2010.]	The exhaust emissions from this engine shall not exceed: 1.0 g/hp-hr or 80 ppmvd at 15% O_2 of VOC. The NOx and CO emissions limitations specified by this rule are less stringent than the emissions limitation established pursuant to OAC rule 3745-31-05(A)(3) and OAC Rule 3745-31-05(E). see b)(2)c. and b)(2)d. below.
i.	40 CFR 60.1 – 19 (40 CFR 60.4246)	Table 3 to Subpart JJJJ of 40 CFR Part 60 – Applicability of Subpart A to Subpart JJJJ shows which parts of the General Provisions in 40 CFR 60.1-19 apply.
j.	40 CFR Part 63 Subpart ZZZZ 40 CFR 63.6590(c)(1)	A new or reconstructed area source operating in compliance with Part 60 Subpart JJJJ is the demonstrations of compliance for 40 CFR 63 Subpart ZZZZ.

(2) Additional Terms and Conditions

a. These Best Available Technology (BAT) emission limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tpy BAT exemption) into the Ohio State Implementation Plan (SIP).

b. These requirements apply once U.S. EPA approves OAC rule 3745-31-05(A)(3)(a)(ii) (the less than 10 tpy BAT exemption) as part of the Ohio SIP.

c. The non-emergency stationary spark ignition (SI) internal combustion engine is subject to and shall be operated in compliance with the requirements of 40 CFR Part 60, Subpart JJJJ, the standards of performance for stationary SI ICE.

d. The non-emergency stationary SI ICE has been or shall be purchased certified by the manufacturer to emission standards as stringent as those identified in 40 CFR 60.4233(e) and found in Table 1 of Part 60, Subpart JJJJ for engines greater than or equal to 500 HP and less than 1,350 HP and manufactured on or after 7/1/10.

c) Operational Restrictions

(1) The permittee shall burn only natural gas, or digester gas with a minimum heat content of 550 Btu/scf, in this emissions unit.

(2) Digester gas combusted in this emissions unit shall not exceed 500 parts per million on a volume basis (ppm_v) of hydrogen sulfide once a steady system is established in the digester, but not later than six months after seed sludge is initially introduced into the digester. During the commissioning phase the digester gas combusted in this emissions unit shall not exceed 1,000 ppm_v of hydrogen sulfide.

The commissioning phase is the period of time once seed sludge is introduced into the digester until a steady system is established that can be fed the design-case feedstock load on a daily basis.

(3) The maximum annual operating hours for this emissions unit shall not exceed 5,110 hours.

(4) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4234	Operating and maintaining the unit to achieve the emission standards over the entire life of the unit.
60.4243	Emissions controls – three-way catalyst and air-fuel ratio controllers.
60.4243(b)	Demonstrate compliance.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall perform daily checks, when the emissions unit is in operation firing digester gas and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the color of the emissions;

b. whether the emissions are representative of normal operations;

c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;

d. the total duration of any visible emission incident; and

e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that

no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

The permittee may, upon receipt of written approval from Cleveland Division of Air Quality, modify the above-mentioned frequencies for performing the visible emissions checks if operating experience indicates that less frequent visible emissions checks would be sufficient to ensure compliance with the above-mentioned applicable requirements.

(2) For each day during which the permittee burns a fuel other than natural gas and/or digester fuel, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

(3) The permittee shall maintain monthly records of the natural gas and digester gas fuel usage in this unit in millions of standard cubic feet (MMSCF).

(4) The permittee shall maintain monthly records of the heat content of the digester gas, in Btu / scf.

(5) The permittee shall maintain monthly records of the operating hours for this emissions unit.

(6) The permittee shall monitor and record hydrogen sulfide concentrations when operating the emissions unit with digester gas using one of the two following options:

Option 1: Weekly gas detector tube sampling. The accuracy of gas detector tubes is presumed to be ± 10%, unless the permittee is able to demonstrate better accuracy of the detector tubes compared to a certified gas standard. The permittee shall perform gas detector tube monitoring in accordance with the manufacturer's instructions for use of the detector tubes and associated sampling system. Any deviations from the manufacturer's instructions should be recorded with the concentration results of the sampling.

Option 2: Continuous digester gas monitoring system. The permittee may install a sampling and analysis system to continuously monitor and record the H_2S content of the digester gas. The permittee shall properly install, operate, and maintain a continuous digester gas H_2S monitoring device and recorder that measures and records the H_2S concentrations in the digester gas when the emissions unit is in operation, including periods of startup and shutdown. The H_2S monitoring device and recorder shall be capable of satisfying the performance requirements specified in 40 CFR Part 60, Appendix B, Performance Specification 5 and shall be capable of accurately measuring the H_2S concentration. The H_2S monitoring device and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee.

Whenever the monitored value for hydrogen sulfide exceeds the lower limit of the accuracy of the monitoring system as measured by either of the above monitoring

options, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

d. the name(s) of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the hydrogen sulfide concentration below the maximum limit specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

f. a description of the corrective action;

g. the date the corrective action was completed;

h. the date and time the deviation ended;

i. the total period of time (in minutes) during which there was a deviation;

j. hydrogen sulfide readings immediately after the corrective action was implemented; and

k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

(7) Modeling to demonstrate compliance with, the “Toxic Air Contaminant Statute”, ORC 3704.03(F)(4)(b), was not necessary because the emissions unit’s maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install 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 permit to install.

(8) The permittee shall comply with the applicable monitoring and record keeping requirements under 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4243(e)	Emergency operations, special record keeping.
60.4245(a)	Record keeping requirements.
Table 3 to §60.4246	Applicability of General Provisions.

e) Reporting Requirements

(1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

a. The permittee shall identify the following information in the annual PER in accordance with the monitoring and recordkeeping requirements in section d):

i. each day during which a fuel other than natural gas or digester gas was burned in this emissions unit, and the type and quantity of fuel burned;

ii. each month during which digester gas with a minimum heat content less than 550 btu/scf was burned in this emissions unit;

iii. the hours of operation for the reporting period;

iv. each day during which the digester gas exceeded 500 ppm H_2S after the steady system has been established in the digester, but not later than six months after seed sludge is initially introduced into the digester; or, each day during which the digester gas exceeded 1,000 ppm H_2S during the commissioning phase;

v. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and

vi. any corrective actions taken to minimize or eliminate the visible particulate emissions.

(2) The permittee shall submit reports and such other notifications to the Ohio EPA as are required pursuant to 40 CFR Part 60, Subpart JJJJ, per the following sections:

60.4245(c)	Reporting requirements for initial notifications.
60.4245(d)	Reporting requirements for performance testing.

f) Testing Requirements

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

a. Emissions Limitation:
3.0 g/hp-hr CO.

Applicable Compliance Method:
Compliance with the emission standards shall be demonstrated in accordance with the testing requirements in section f)(2).

b. Emissions Limitation:
15.83 tons/yr CO.

Applicable Compliance Method:
Compliance with the annual limitations shall be determined by multiplying the lb/hr emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

c. Emissions Limitation:
1.0 g/hp-hr NOx.

Applicable Compliance Method:
This limit was established by using the emission factor provided by the manufacturer, Guascor Power.

If required, compliance with the NOx emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 7E of 40 CFR Part 60, Appendix A.

d. Emissions Limitation:
5.28 tons/yr NOx.

Applicable Compliance Method:
Compliance with the annual limitations shall be determined by multiplying the lb/hr emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

e. Emissions Limitation:
SO_2 emissions shall not exceed 1.90 lbs/hr and 4.85 TPY.

Applicable Compliance Method:
The permittee shall demonstrate compliance with the lb/hr emission limitation through the required monitoring and recordkeeping in d)(6) and using the following equation:

E = Gross output of engine (mmBtu/hr) * (10^6 Btu/1 mmBtu) * (1/digester gas heat content) * (H_2S $ppm_v/10^6$) * (0.088 lb H_2S/ft^3 H_2S) * (1.88 lb SO_2/lb H_2S) = SO_2 lbs/hr

Where:

E = SO_2 emissions rate, lbs/hr

Digester gas heat content = average heat content of digester gas in Btu/scf from d)(4)

H_2S ppm_v = average concentration of H_2S in digester gas, from d)(6)

Compliance with the annual limitation shall be determined by multiplying the lb/hr emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

If required, compliance with this emission limitation shall be demonstrated based upon emission testing performed in accordance with the methods and procedures specified in 40 CFR Part 60, Appendix A, Methods 1 through 4 and 6.

f. Emissions Limitation:
Visible particulate emissions shall not exceed 20% opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:
If required, compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with U.S. EPA Method 9.

g. Emissions Limitation:
0.062 pound particulate emissions per million BTU actual heat input.

Applicable Compliance Method:
If required, compliance with the particulate emissions limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 5, as applicable, of 40 CFR Part 60, Appendix A.

h. Emissions Limitation:
The exhaust emissions from this engine shall not exceed:
1.0 g VOC/hp-hr or 80 ppmvd at 15% O_2

Applicable Compliance Method:
Compliance with the emission standards shall be demonstrated in accordance with the testing requirements in section f)(2).

(2) The permittee shall conduct, or have conducted, emission testing for these emissions units in accordance with the procedures specified in 40 CFR 60.4244 and the following requirements:

a. The initial performance test on this engine must be conducted within 60 days after the engine commences operation. Subsequent performance testing shall be conducted every 8,760 hours of engine operation or 3 years, whichever comes first.

b. Each performance test conducted shall be conducted within 10% of 100% peak (or the highest achievable) load and according to the requirements in 40 CFR

60.8 and under the specific conditions that are specified by Table 2 of Subpart JJJJ.

c. The following test method(s) shall be employed, in accordance with Table 2 of Subpart JJJJ, to demonstrate compliance with the allowable mass emission rates:

i. Method 1 or 1A of 40 CFR Part 60, Appendix A or ASTM Method D6522-00 to select the sampling port location and the number of traverse points.

ii. Method 2 of 40 CFR Part 60, Appendix A or Method 19 of 40 CFR Part 60, Appendix A to determine the exhaust flowrate of the engine.

iii. Method 3, 3A, or 3B of 40 CFR Part 60, Appendix A or ASTM Method D6522-00 to measure O_2 at the exhaust stack.

iv. Method 4 of 40 CFR Part 60, Appendix A; or Method 320 of 40 CFR Part 63, Appendix A; or ASTM D6348-03 to measure the moisture content at the exhaust stack.

v. Method 10 of 40 CFR Part 60, Appendix A; or Method 320 of 40 CFR Part 63, Appendix A; or ASTM Method D6522-00; or ASTM D 6348-03 to measure CO at the exhaust stack.

vi. Method 25A of 40 CFR Part 60, Appendix A; or Method 18 of 40 CFR Part 60, Appendix A; or ASTM D6348.03 to measure VOC at the exhaust stack.

d. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA (alternative methods allowed per footnote to Table 2 of subpart).Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA District Office's refusal to accept the results of the emission test(s).

e. Personnel from the Cleveland Division of Air Quality shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

f. A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Ohio EPA Northeast District Office within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Ohio EPA Northeast District Office.

g) Miscellaneous Requirements

(1) This emissions unit was installed in 2011.

(2) Superseded permit P0107748 issued final 9/15/2011.

3. B003, 1.6 MM BTU/HR Boiler

Operations, Property and/or Equipment Description:

1.6 MM BTU Biogas and Natural Gas Boiler.

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 6/30/2008	Emissions of nitrogen oxides (NOx) shall not exceed 0.35 lb/hr and 1.55 tons per year when firing digester gas. Emissions of carbon monoxide (CO) shall not exceed 0.11 lb/hr and 0.47 ton per year when firing digester gas. The requirements of this rule also include compliance with OAC rule 3745-17-07(A) and OAC rule 3745-17-10(B)(1). See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 6/30/2008	The Best Available Technology (BAT) requirements listed under OAC rule 3745-31-05(A)(3) do not apply to the NOx, CO or PM, emissions from this air contaminant source since the

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		uncontrolled potential to emit is less than 10 tons per year taking into account the legally and practically enforceable operational restrictions established in c)(1). See b)(2)b below.
c.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20% opacity as a six-minute average, except as provided by rule.
d.	OAC rule 3745-17-10(B)(1)	Emissions shall not exceed 0.020 pound particulate emissions per million BTU actual heat input.
e.	OAC rule 3745-18-06	See b)(2)c. below.

(2) Additional Terms and Conditions

a. These Best Available Technology (BAT) emissions limits apply until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).

These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) as part of the Ohio SIP.

b. This emissions unit is exempt from the requirements of OAC rule 3745-18-06(D) pursuant to OAC rule 3745-18-06(B).

c) Operational Restrictions

(1) The permittee shall burn only natural gas, or digester gas with a minimum heat content of 550 Btu/scf, in this emissions unit.

d) Monitoring and/or Recordkeeping Requirements

(1) For each day the permittee burns a fuel other than natural gas or digester gas in this emissions unit, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

(2) The permittee shall maintain monthly records of the heat content of the digester gas, in Btu/scf.

e) Reporting Requirements

(1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

f) Testing Requirements

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

a. Emissions Limitation:
0.35 lb/hr NOx.

Applicable Compliance Method:
This limit was established by using the emission factor provided by the manufacturer, Bryan Steam, LLC.

If required, compliance with the NOx emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 7 or 7E, as applicable, of 40 CFR Part 60, Appendix A.

b. Emissions Limitation:
1.55 tons/yr NOx.

Applicable Compliance Method:
Compliance with the annual limitations shall be determined by multiplying the lb/hr emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

c. Emissions Limitation:
0.11 pound lb/hr CO.

Applicable Compliance Method:
This limit was established by using the emission factor provided by the manufacturer, Bryan Steam, LLC.

If required, compliance with the CO emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 10, of 40 CFR Part 60, Appendix A.

d. Emissions Limitation:
0.47 ton/yr CO.

Applicable Compliance Method:
Compliance with the annual limitations shall be determined by multiplying the lb/hr emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

e. Emissions Limitation:
Visible particulate emissions shall not exceed 20% opacity as a six-minute average, except as provided by rule.

Applicable Compliance Method:
If required, compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with U.S. EPA Method 9.

f. Emissions Limitation:
0.020 pound particulate emissions per million BTU actual heat input.

Applicable Compliance Method:
If required, compliance with the particulate emissions limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 5, as applicable, of 40 CFR Part 60, Appendix A.

g) Miscellaneous Requirements

(1) This emissions unit was installed in 2011.

(2) Superseded permit P0107748 issued final 9/15/2011.

4. F001, Roadways and Parking Areas

Operations, Property and/or Equipment Description:

Paved Roadways and Parking Areas.

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 6/30/2008	PM_{10} shall not exceed 1.84 tons/year. No visible emissions of fugitive dust except for one minute during any 60-minute period. See b)(2)a. below.
b.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 6/30/2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the PM_{10} emissions from this air contaminant source since the potential to emit is less than 10 tons/year. See b)(2)b. below.
c.	OAC rule 3745-31-05(E)	Vehicle miles traveled shall be limited to 1,400 miles per year

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
d.	OAC rule 3745-17-07(B)(4)	There shall be no visible particulate emissions from any paved roadway or parking area except for a period of time not to exceed six minutes during any 60-minute observation period. See b)(2)h. below.
e.	OAC rule 3745-17-08(B)	See b)(2)c. through b)(2)g. below.

(2) Additional Terms and Conditions

a. This Best Available Technology (BAT) emission limit applies until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).

b. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) as part of the Ohio SIP.

c. The permittee shall employ reasonably available control measures on all paved roadways and parking areas for the purpose of ensuring compliance with the above-mentioned applicable requirements. In accordance with the permittee's application, the permittee has committed to treat the paved roadways and parking areas by application of chemical stabilization/dust suppressants and/or watering at sufficient treatment frequencies to ensure compliance. Nothing in this paragraph shall prohibit the permittee from employing other control measures to ensure compliance.

d. The needed frequencies of implementation of the control measures shall be determined by the permittee's inspections pursuant to the monitoring section of this permit. Implementation of the control measures shall not be necessary for paved roadways and parking areas that are covered with snow and/or ice or if precipitation has occurred that is sufficient for that day to ensure compliance with the above-mentioned applicable requirements. Implementation of any control measure may be suspended if unsafe or hazardous driving conditions would be created by its use.

e. The permittee shall promptly remove, in such a manner as to minimize or prevent resuspension, earth and/or other material from paved streets onto which such material has been deposited by trucking or earth moving equipment or erosion by water or other means.

f. Open-bodied vehicles transporting materials likely to become airborne shall have such materials covered at all times if the control measure is necessary for the materials being transported.

g. Implementation of the above-mentioned control measures in accordance with the terms and conditions of this permit is appropriate and sufficient to satisfy the best available technology requirements of OAC rule 3745-17-08.

h. Until such time the U.S. EPA approves the revision to OAC rule 3745-31-05, the more stringent or equivalent visible emissions limits established under OAC rule 3745-31-05(A)(3) shall apply. Upon U.S. EPA approval of the revisions to OAC rule 3745-31-05, the rule based limits under OAC rule 3745-17-07(A) shall go into effect.

c) Operational Restrictions

(1) None.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall maintain records of the following information in a readily accessible location for at least five years and shall make these records available to the Cleveland Division of Air Quality (CDAQ) upon verbal or written request.

a. Total vehicle miles traveled per year.

(2) Except as otherwise provided in this section, the permittee shall perform inspections of each of the roadway segments and parking areas in accordance with the following frequencies:

paved roadways and parking areas	minimum inspection frequency
all roads and parking areas	daily

(3) The purpose of the inspections is to determine the need for implementing the above-mentioned control measures. The inspections shall be performed during representative, normal traffic conditions. No inspection shall be necessary for a roadway or parking area that is covered with snow and/or ice or if precipitation has occurred that is sufficient for that day to ensure compliance with the above-mentioned applicable requirements. Any required inspection that is not performed due to any of the above-identified events shall be performed as soon as such event(s) has (have) ended, except if the next required inspection is within one week.

(4) The permittee shall maintain records of the following information:

a. the date and reason any required inspection was not performed, including those inspections that were not performed due to snow and/or ice cover or precipitation;

b. the date of each inspection where it was determined by the permittee that it was necessary to implement the control measures;

c. the dates the control measures were implemented; and

d. on a calendar quarter basis, the total number of days the control measures were implemented and the total number of days where snow and/or ice cover or precipitation were sufficient to not require the control measures.

(5) The information required in d)(3)d. shall be updated on a calendar quarter basis within 30 days after the end of each calendar quarter.

e) Reporting Requirements

(1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

f) Testing Requirements

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

a. Emission Limitations:
1.84 tons/year of PM_{10}.

Applicable Compliance Method:
Compliance with fugitive PM_{10} limitations shall be determined by using the emission factor equations in Section 13.2.1, in Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1 (revised 01/11) for paved roadways. Should further updates in AP-42 occur, the most current equations for paved roads shall be used.

b. Emission Limitation:
No visible emissions of fugitive dust from paved roadways and parking areas except for a period of time not to exceed one minute during any 60-minute observation period.

Applicable Compliance Method:
If required, compliance with the visible PM limitation listed above shall be determined in accordance with Test Method 22 as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 1996, and the modifications listed in paragraphs (B)(4)(a) through (B)(4)(d) of OAC rule 3745-17-03.

c. Emission Limitation:
No visible emissions of fugitive dust from any paved roadway or parking area except for a period of time not to exceed six minutes during any 60-minute observation period.

Applicable Compliance Method:
If required, compliance with the visible PM limitation listed above shall be determined in accordance with Test Method 22 as set forth in "Appendix on Test Methods" in 40 CFR, Part 60 ("Standards of Performance for New Stationary Sources"), as such Appendix existed on July 1, 1996, and the modifications listed in paragraphs (B)(4)(a) through (B)(4)(d) of OAC rule 3745-17-03.

g) Miscellaneous Requirements

(1) This emissions unit was installed in 2011.

(2) Superseded permits include P0107748 issued final 9/15/2011; and P0114300 issued final 5/21/2013.

5. P001, Emergency Flare

Operations, Property and/or Equipment Description:

Anaerobic Digester System Emergency Flare (24 MMBtu) fueled by biogas and natural gas. Includes one 30 cubic yard solid feedstock receiving hopper, one 12,000 gallon liquid feedstock receiving tank (LFRT), one 230,000 gallon biomass equalization tank, two anaerobic digesters with a total treatment capacity of 1,500,000 gallons, three 12,000 gallon heat treatment tanks, one 230,000 gallon heat treated material storage tank and one centrifuge.

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) ORC 3704.03(T)	Emissions of carbon monoxide (CO) shall not exceed 0.19 lb/MMBtu. See c)(1) and c)(2) below.
b.	OAC rule 3745-31-05(A)(3), as effective 6/30/2008	Emissions of sulfur dioxide (SO_2) shall not exceed 3.62 lbs/hr and 9.22 tons/year. Emissions of nitrogen oxides (NOx) shall not exceed 0.06 pounds per million Btu (lb/MMBtu) and 3.68 tons per year. See b)(2)a. below.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 6/30/2008	The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the SO_2 and NOx emissions from this air contaminant source since the potential to emit is less than 10 tons/year. See b)(2)b. below.
d.	OAC rule 3745-31-05(E)	Emissions of sulfur dioxide (SO_2) shall not exceed 3.62 lbs/hr and 9.22 tons/year. Emissions of nitrogen oxides (NOx) shall not exceed 0.06 pounds per million Btu (lb/MMBtu) and 3.68 tons per year. Maximum annual operating hours for this emissions unit shall not exceed 5,110 hours.
e.	OAC rule 3745-17-11(B)	See b)(2)c. below.
f.	OAC rule 3745-17-07(B)(1)	See b)(2)d. below.

(2) Additional Terms and Conditions

a. This Best Available Technology (BAT) emission limit applies until U.S. EPA approves Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) into the Ohio State Implementation Plan (SIP).

i. These requirements apply once U.S. EPA approves OAC paragraph 3745-31-05(A)(3)(a)(ii) (the less than 10 tons per year BAT exemption) as part of the Ohio SIP.

b. The uncontrolled mass rate of particulate emissions from this emissions unit is less than 10 pounds per hour. Pursuant to OAC rule 3745-17-11(A)(2)(a)(ii), Figure II of OAC rule 3745-17-11 does not apply. In addition, Table I of OAC rule 3745-17-11 does not apply because the process weight rate is equal to zero. Process weight is defined in OAC rule 3745-17-01(B)(17).

c. This emissions unit is exempt from the visible PE limitations specified in OAC rule 3745-17-07(A) pursuant to OAC rule 3745-17-07(A)(3)(h) because the emissions unit is not subject to the requirements of OAC rule 3745-17-11.

d. The emissions from the digestion process shall be vented to the flare during any instance when digester gas is present in the feedstock equilibrium tank, primary digester, or dual purpose tank and the combined heat and power unit is not firing digester gas.

e. Anaerobic digesters, including all associated equipment and grounds, shall be designed, operated, and maintained so as to prevent the emission of objectionable odors.

f. The permittee shall properly install, operate, and maintain a device to continuously monitor the flare pilot flame or electric arc ignition when the emissions unit is in operation. The monitoring device and any recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals.

c) Operational Restrictions

(1) Digester gas combusted in this emissions unit shall not exceed 500 parts per million on a volume basis (ppm_v) of hydrogen sulfide once a steady system is established in the digester, but not later than six months after seed sludge is initially introduced into the digester. During the commissioning phase the digester gas combusted in this emissions unit shall not exceed 1,000 ppm_v of hydrogen sulfide.

The commissioning phase is the period of time once seed sludge is introduced into the digester until a steady system is established that can be fed the design-case feedstock load on a daily basis.

(2) Digester gas combusted in the flare serving this emissions unit shall not be less than 500 Btu/scf.

(3) The maximum annual operating hours for this emissions unit shall not exceed 5,110 hours.

(4) A pilot flame shall be maintained at all times in the flare's pilot light burner or the arcing of the flare's electric arc ignition system shall pulse continually when the emissions unit is in operation.

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall monitor and record hydrogen sulfide concentrations when operating the emissions unit with digester gas using one of the two following options:

<u>Option 1:</u> Weekly gas detector tube sampling. The accuracy of gas detector tubes is presumed to be ± 10%, unless the permittee is able to demonstrate better accuracy of the detector tubes compared to a certified gas standard. The permittee shall perform gas detector tube monitoring in accordance with the manufacturer's instructions for use of the detector tubes and associated sampling system. Any deviations from the manufacturer's instructions should be recorded with the concentration results of the sampling.

Option 2: Continuous digester gas monitoring system. The permittee may install a sampling and analysis system to continuously monitor and record the H_2S content of the digester gas. The permittee shall properly install, operate, and maintain a continuous digester gas H_2S monitoring device and recorder that measures and records the H_2S concentrations in the digester gas when the emissions unit is in operation, including periods of startup and shutdown. The H_2S monitoring device and recorder shall be capable of satisfying the performance requirements specified in 40 CFR Part 60, Appendix B, Performance Specification 5 and shall be capable of accurately measuring the H_2S concentration. The H_2S monitoring device and recorder shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and the operating manuals, with any modifications deemed necessary by the permittee.

Whenever the monitored value for hydrogen sulfide exceeds the lower limit of the accuracy of the monitoring system as measured by either of the above monitoring options, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

a. the date and time the deviation began;

b. the magnitude of the deviation at that time;

c. the date the investigation was conducted;

d. the name(s) of the personnel who conducted the investigation; and

e. the findings and recommendations.

In response to each required investigation to determine the cause of a deviation, the permittee shall take prompt corrective action to bring the hydrogen sulfide concentration below the maximum limit specified in this permit, unless the permittee determines that corrective action is not necessary and documents the reasons for that determination and the date and time the deviation ended. The permittee shall maintain records of the following information for each corrective action taken:

f. a description of the corrective action;

g. the date the corrective action was completed;

h. the date and time the deviation ended;

i. the total period of time (in minutes) during which there was a deviation;

j. hydrogen sulfide readings immediately after the corrective action was implemented; and

k. the name(s) of the personnel who performed the work.

Investigation and records required by this paragraph do not eliminate the need to comply with the requirements of OAC rule 3745-15-06 if it is determined that a malfunction has occurred.

(2) The permittee shall maintain monthly records of the heat content of the digester gas, in Btu/scf.

(3) The permittee shall maintain monthly records of the operating hours for this emissions unit.

(4) The permittee shall maintain daily records of all periods of time during which the electric arc system was inoperable or there was no flare pilot flame when digester gas was present in the feedstock equilibrium tank, primary digester, or dual purpose tank, and the combined heat and power unit was not firing digester gas.

(5) The permittee shall monitor and record the volume of digester gas flared in standard cubic feet per year, and shall calculate and record the annual heat input to the flare in million Btu.

e) Reporting Requirements

(1) The permittee shall submit an annual Permit Evaluation Report (PER) to the Ohio EPA District Office or Local Air Agency by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit. It is recommended that the PER is submitted electronically through the Ohio EPA's "e-Business Center: Air Services" although PERs can be submitted via U.S. postal service or can be hand delivered.

a. The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements in d) above:

i. all periods of time during which the flare's electric arc ignition system was not functioning properly or there was no flare pilot flame when digester gas was present in the feedstock equilibrium tank, primary digester, or dual purpose tank, and the combined heat and power unit was not firing digester gas;

ii. each month during which digester gas with a minimum heat content of less than 500 Btu / scf was burned in this emissions unit;

iii. the hours of operation for the reporting period; and

iv. each period during which digester gas containing an H_2S concentration greater than allowed by c)(1) was burned.

f) Testing Requirements

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

a. Emissions Limitation:
0.19 lb/MMBtu of CO.

Applicable Compliance Method:
This limit was established by using the emission factor of 0.19 lb/MMBtu of CO provided by the manufacturer, Varec Biogas.

If required, compliance with the CO emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 10 of 40 CFR Part 60, Appendix A.

b. Emissions Limitation:
3.62 lbs/hr SO_2.

Applicable Compliance Method:
The permittee shall demonstrate compliance with the short-term and annual emissions limitation through the required monitoring and recordkeeping in d)(1) and using the following equation:

E = Gross output of engine (mmBtu/hr) * (10^6 Btu / 1 mmBtu) * (1 / digester gas heat content) * (H_2S ppm_v / 1,000,000) * 0.088 lb H_2S/ft^3 H_2S * 1.88 lb SO_2/lb H_2S = SO_2 lb/hr

Where:

E = SO_2 emissions rate, lb/hr

Digester gas heat content = average heat content of digester gas in Btu/scf from d)(2)

H_2S ppm_v = average concentration of H_2S in digester gas, from d)(1)

If required, sulfur dioxide emissions shall be determined according to test Methods 1 - 4, and 6 as set forth in 40 CFR, Part 60 Appendix A.

c. Emissions Limitation:
9.22 tons/yr SO_2.

Applicable Compliance Method:
Compliance with the annual limitations shall be determined by multiplying the lb/hr emissions rate by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

d. Emissions Limitation:
0.06 lb/MMBtu NOx.

Applicable Compliance Method:
This limit was established by using the emission factor of 0.06 lb/MMBtu of NOx provided by the manufacturer, Varec Biogas.

If required, compliance with the NOx emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 7E of 40 CFR Part 60, Appendix A.

e. Emissions Limitation:
3.68 tons/yr NOx.

Applicable Compliance Method:
Compliance with the annual limitations shall be determined by multiplying the hourly emissions rate (lb/MMBtu times MMBtu/hr) by the actual annual operating hours, and then dividing by 2,000 lbs/ton.

g) Miscellaneous Requirements

(1) If required, the permittee shall confirm, through the applicable methods and procedures specified in 40 CFR Part 60.18, that the flare's exit velocity and the net heating value of the digester gas conform to the maximum design values specified by the flare manufacturer.

(2) This emissions unit was installed in 2011.

(3) Superseded permit P0107748 issued final 9/15/2011.