



Environmental Protection Agency

John R. Kasich, Governor
Mary Taylor, Lt. Governor
Scott J. Nally, Director

10/6/2011

Mr. Bruce Bailey
Northwest BioEnergy, LLC
7624 Riverview Road
Cleveland, OH 44141

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL AND OPERATE
Facility ID: 0448011922
Permit Number: P0108745
Permit Type: Initial Installation
County: Lucas

Certified Mail

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

Dear Permit Holder:

Enclosed please find a final 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. Please complete a survey at www.epa.ohio.gov/dapc/permitsurvey.aspx and give us feedback on your permitting experience. We value your opinion.

The issuance of this PTI 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
309 South Fourth Street, Room 222
Columbus, OH 43215

If you have any questions, please contact Toledo Department of Environmental Services at (419)936-3015 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. This permit can be accessed electronically on the DAPCWeb page, www.epa.ohio.gov/dapc, by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern, Manager
Permit Issuance and Data Management Section, DAPC

Cc: TDES



FINAL

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

Facility ID:	0448011922
Permit Number:	P0108745
Permit Type:	Initial Installation
Issued:	10/6/2011
Effective:	10/6/2011
Expiration:	10/6/2021



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

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Authorization

Facility ID: 0448011922
Application Number(s): A0042743
Permit Number: P0108745
Permit Description: Installation of an anaerobic digestion process with flare, 2,233 HP digester gas/natural gas fueled internal combustion engine powering a 1.6 MW electrical generator, and 1.6 mmBtu/hr digester gas/natural gas fired boiler.
Permit Type: Initial Installation
Permit Fee: \$1,800.00
Issue Date: 10/6/2011
Effective Date: 10/6/2011
Expiration Date: 10/6/2021
Permit Evaluation Report (PER) Annual Date: Oct 1 - Sept 30, Due Nov 15

This document constitutes issuance to:

Northwest BioEnergy, LLC
5315 Stickney Avenue
Toledo, OH 43612

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

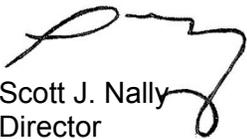
Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Toledo Department of Environmental Services
348 South Erie Street
Toledo, OH 43604
(419)936-3015

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


Scott J. Nally
Director



Authorization (continued)

Permit Number: P0108745

Permit Description: Installation of an anaerobic digestion process with flare, 2,233 HP digester gas/natural gas fueled internal combustion engine powering a 1.6 MW electrical generator, and 1.6 mmBtu/hr digester gas/natural gas fired boiler.

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:	Boiler Unit 1
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	F001
Company Equipment ID:	Roadways and parking
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P001
Company Equipment ID:	Emergency flare
Superseded Permit Number:	
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	P002
Company Equipment ID:	1.6 MW Generator (CHPU)
Superseded Permit Number:	
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. Unless otherwise specified, facilities subject to one or more synthetic minor restrictions must use Ohio EPA's "Air Services" to submit annual emissions associated with this permit requirement. 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 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 Toledo Department of Environmental Services 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 submitting¹ 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 emissions unit once the certification has been submitted to Ohio EPA by the authorized official.

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

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

¹Permittees that use Ohio EPA's "Air Services" can mark the affected emissions unit(s) as "permanently shutdown" in the facility profile along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).

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: P002. The complete NSPS requirements, including the NSPS General Provisions may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website <http://ecfr.gpoaccess.gov> or by contacting the Toledo Division of Environmental Services.
3. The following emissions units contained in this permit are subject to 40 CFR Part 63, Subpart ZZZZ: P002. The complete MACT requirements, including the MACT General Provisions may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website <http://ecfr.gpoaccess.gov> or by contacting the Toledo Division of Environmental Services.

C. Emissions Unit Terms and Conditions



1. B001, Boiler Unit 1

Operations, Property and/or Equipment Description:

1.6 mmBtu/hr digester gas/natural gas-fired 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.

Table with 2 columns: Applicable Rules/Requirements and Applicable Emissions Limitations/Control Measures. Row 'a.' lists OAC rule 3745-31-05(A)(3) and specifies limits for CO, NOx, PE, and SO2 emissions.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		per year during the commissioning phase of the digester. Volatile organic compound (VOC) emissions shall not exceed 0.02 pound per hour, and 0.09 ton per year. See b)(2)a. and b)(2)c.
b.	OAC rule 3745-31-05(A)(3), as effective 12/01/2006	See b)(2)b.
c.	OAC rule 3745-31-05(E)	The combined NO _x emissions from emissions units B001, P001, and P002 shall not exceed 24.9 tons per year.
d.	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
e.	OAC rule 3745-17-10(B)	PE shall not exceed 0.020 pound per million Btu of actual heat input.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to Ohio Administrative Code (OAC) paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to the Ohio Revised Code (ORC) changes effective August 3, 2006 (Senate Bill 265 changes), such that BAT is no longer required by State regulations for National Ambient Air Quality Standards (NAAQS) pollutant(s) less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05, then these emission limitations/control measures no longer apply.
- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

BAT is not required if the air contaminant source was installed or modified on or after August 3, 2006 and has the potential to emit, taking into account air pollution controls installed on the source, less than ten tons per year of emissions of an air contaminant or precursor of an air contaminant for which a national ambient air quality standard has been adopted under the Clean Air Act.

The Best Available Technology (BAT) requirements listed under OAC rule 3745-31-05(A)(3) do not apply to the CO, NO_x, PE, SO₂ or VOC emissions from this air contaminant source since the uncontrolled potential to emit for CO, NO_x, PE, SO₂ and VOC is less than 10 tons per year taking into account the legally and practically enforceable operational restrictions established in c)(1) and c)(2).

- c. The pounds per hour and ton per year emissions limitations for CO, NO_x, PE, and VOC are based on the emissions unit's potentials to emit while combusting digester gas or natural gas. No monitoring, recordkeeping, or reporting requirements are necessary to demonstrate compliance with these emissions limitations.

c) Operational Restrictions

- (1) The permittee shall only burn natural gas or digester gas with a minimum heat content of 500 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 when the digester operation reaches steady state conditions. During the commissioning phase of the digester operation, 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.

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 calculate and record the annual firing rate of this emissions unit in standard cubic feet per year and million Btu per calendar year.
- (3) The permittee shall monitor and record digester gas hydrogen sulfide concentrations 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 H₂S content of the digester gas. The permittee shall properly install, operate, and maintain a continuous digester gas H₂S monitoring device and recorder that measures and records the H₂S

concentrations in the digester gas when the emissions unit is in operation, including periods of startup and shutdown. The H₂S monitoring device and recorder shall be capable of satisfying the performance requirements specified in 40 CFR Part 60, Appendix B, Performance Specification 7 and shall be capable of accurately measuring the H₂S concentration. The H₂S 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 90% of the allowable concentration, or the lower limit of the accuracy of the monitoring method as determined by the permittee, 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:

- a. a description of the corrective action;
- b. the date the corrective action was completed;
- c. the date and time the deviation ended;
- d. the total period of time (in minutes) during which there was a deviation;
- e. hydrogen sulfide readings immediately after the corrective action was implemented; and
- f. 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.

- (4) The permittee shall calculate and record the annual NO_x emissions from this emissions unit.

- (5) The permittee shall calculate and record the combined annual NO_x emissions from emissions units B001, P001, and P002.
 - (6) The permittee shall sample, analyze and record monthly the heat content of the digester gas, in Btu / scf.
- e) Reporting Requirements
- (1) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.
 - (2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director 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.
 - (3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements in d)(1), d)(3), d)(5) and d)(6):
 - a. each day during which a fuel other than natural gas or digester gas was burned in this emissions unit;
 - b. each month during which digester gas with a minimum heat content of less than 500 Btu / scf was burned in this emissions unit;
 - c. each period during which digester gas containing an H₂S concentration greater than allowed by c)(2) was burned; and
 - d. any exceedance of the 24.9 tons per year NO_x emission limitation for B001, P001 and P002 combined.
- f) Testing Requirements
- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
 - a. Emission Limitation:

CO emission shall not exceed 0.18 pound per hour and 0.79 ton per year.

Applicable Compliance Method:

The hourly emission limitation was developed by multiplying the maximum heat input (1.6 mmBtu/hr) by the CO emission factor supplied by the manufacturer (0.107 lb/mmBtu) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 thru 4 and 10 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.18 lb/hr) by the maximum annual operating hours (8,760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

b. Emission Limitation:

NO_x emission shall not exceed 0.57 pound per hour and 2.5 tons per year.

Applicable Compliance Method:

The hourly emission limitation was developed by multiplying the maximum heat input (1.6 mmBtu/hr) by the NO_x emission factor supplied by the manufacturer (0.353 lb/mmBtu) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 thru 4 and 7 or 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.57 lb/hr) by the maximum annual operating hours (8,760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

c. Emission Limitation:

PE emission shall not exceed 0.02 pound per hour and 0.09 ton per year.

Applicable Compliance Method:

The hourly emission limitation was developed by multiplying the maximum heat input (1.6 mmBtu/hr) by the particulate emission factor supplied by the manufacturer (0.0075 lb/mmBtu) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 thru 5 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.02 lb/hr) by the maximum annual operating hours (8,760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is shown.

d. Emission Limitation:

SO₂ emission shall not exceed 0.21 pound per hour and 0.92 ton per year when the digester operation reaches steady state conditions.

Applicable Compliance Method:

This emission limitation is based on a maximum biogas H₂S content of 500 ppmv at 70 degrees F, which is calculated to be 0.13 pound of SO₂ emitted per million Btu of actual heat input. Multiply the maximum biogas firing rate (1.6 mmBtu/hr) by the SO₂ emission factor (0.13 lb/mmBtu) = 0.21 pound per hour.

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 thru 4 and 6 or 6C of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.21 lb/hr) by the maximum annual operating hours (8,760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is maintained.

e. Emission Limitation:

SO₂ emission shall not exceed 0.42 pound per hour and 1.8 tons per year during the commissioning phase of the digester operation.

Applicable Compliance Method:

This emission limitation is based on a maximum biogas H₂S content of 1,000 ppmv at 70 degrees F, which is calculated to be 0.26 pound of SO₂ emitted per million Btu of actual heat input. Multiply the maximum biogas firing rate (1.6 mmBtu/hr) by the SO₂ emission factor (0.26 lb/mmBtu) = 0.42 pound per hour.

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 thru 4 and 6 or 6C of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.42 lb/hr) by the maximum annual operating hours (8,760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is maintained.

f. Emission Limitation:

VOC emission shall not exceed 0.02 pound per hour and 0.09 ton per year.

Applicable Compliance Method:

The hourly emission limitation was developed by multiplying the maximum heat input (1.6 mmBtu/hr) by the VOC emission factor supplied by the manufacturer (0.012 lb/mmBtu) to determine the hourly emissions.

If required, the permittee shall demonstrate compliance with the hourly emission limitation using Methods 1 thru 4 and 25 or 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by multiplying the hourly emission limitation (0.02 lb/hr) by the maximum annual operating hours (8,760 hrs/yr) and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the hourly limitation is maintained.

g. Emission Limitation:

Visible emissions shall not exceed 20% opacity as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

Compliance with the stack visible particulate emissions limitation shall be determined through visible emissions observations performed in accordance with Method 9 of 40 CFR Part 60, Appendix A.

h. Emission Limitation:

The combined NO_x emissions from emissions units B001, P001, and P002 shall not exceed 24.9 tons per year.

Applicable Compliance Method:

Compliance with this emission limitation may be demonstrated by the records required by d)(5).

g) Miscellaneous Requirements

- (1) None.

2. F001, Roadways and parking

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 11/30/2001	Particulate emissions (PE) shall not exceed 0.13 ton per year. There shall be no visible PE except for one minute during any 60-minute period. See b)(2)a., and b)(2)c. through b)(2)g.
b.	OAC rule 3745-31-05(A)(3), as effective 12/01/2006	See b)(2)b.
c.	OAC rule 3745-17-07(B)(4)	There shall be no visible PE emissions from the paved roadways and/or parking areas except for a period of time not to exceed six minutes during any 60-minute observation period.
d.	OAC rule 3745-17-08(B)	The permittee shall employ reasonable available control measures that are sufficient to minimize or eliminate visible



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		PE of fugitive dust. See b)(2)c through b)(2)g.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutant less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plant (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then these emission limits/control measures no longer apply.
- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to PE from this air contaminant source since the uncontrolled potential to emit for PE is less than 10 tons per year.
- 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 implement good housekeeping practices and flushing deposited foreign material with water on the paved roadways and parking areas 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 3745-31-05(A)(3) and OAC rule 3745-17-08(B).

c) Operational Restrictions

- (1) None.

d) Monitoring and/or Recordkeeping Requirements

- (1) 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:

<u>paved roadways and parking areas</u>	<u>minimum inspection frequency</u>
all roads and parking areas	daily

- (2) 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.

- (3) 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.

- (4) 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 reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.
- (2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the Director 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.
- (3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements in d)(3):
 - a. the date and reason any required inspection was not performed.

f) Testing Requirements

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

- a. Emission Limitations:

PE shall not exceed 0.13 ton per year.

Applicable Compliance Method:

Compliance with the fugitive PE limitation 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 1/11) for paved roadways taking into account an 80% control efficiency for implementing reasonably available control measures. Should further updates in AP-42 occur, the most current equations for paved roads shall be used.

- b. Emission Limitation:

No visible PE 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 PE 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 PE from paved roadways and parking areas 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 PE 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) None.



3. P001, Emergency flare

Operations, Property and/or Equipment Description:

Anaerobic digestion process with 14.2 mmBtu/hr flare

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.	ORC 3704.03(T)	Carbon monoxide (CO) emissions shall not exceed 0.185 pound per million Btu of actual heat input. Sulfur dioxide (SO ₂) emissions shall not exceed 0.13 pound per million Btu of actual heat input when the digester operation reaches steady state conditions. Sulfur dioxide (SO ₂) emissions shall not exceed 0.26 pound per million Btu of actual heat input during the digester commissioning phase. See b)(2)f. thru h.
b.	OAC rule 3745-31-05(A)(3), as effective 11/30/2001	Nitrogen oxides (NO _x) emissions shall not exceed 0.06 pound per million Btu of actual heat input and 3.7 tons per year.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Particulate emissions (PE) shall not exceed 0.002 pound per million Btu of actual heat input and 0.12 ton per year.</p> <p>Volatile organic compound (VOC) emissions shall not exceed 0.002 pound per million Btu of actual heat input and 0.12 ton per year.</p> <p>See b)(2)a. and b)(2)f.</p>
c.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 12/01/2006	See b)(2)b.
d.	OAC rule 3745-31-05(E)	<p>The combined NO_x emissions from emissions units B001, P001, and P002 shall not exceed 24.9 tons per year.</p> <p>Limitation to ensure compliance with OAC rule 3745-15-07 - see b)(2)c.</p>
e.	OAC rule 3745-17-11(B)	See b)(2)d.
f.	OAC rule 3745-17-07(B)(1)	See b)(2)e.
g.	OAC rule 3745-18-06(E)	See b)(2)i.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutant less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then these emission limits/control measures no longer apply.
- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to NO_x and PE emissions from this air contaminant source since the uncontrolled potential to emit for emissions of NO_x, PE and VOC is less than 10 tons per year.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to VOC emissions from this air contaminant source since the potential to emit for emissions of VOC is less than 10 tons per year, taking into account the use of a flare.

- c. The anaerobic digestion system, including all associated equipment and grounds, shall be designed, operated, and maintained so as to prevent the emission of objectionable odors.
- d. 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).
- e. 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.
- f. The pound per million Btu and ton per year emissions limitations for CO, NO_x, and PE are based on the emissions unit's potentials to emit. No monitoring, recordkeeping, or reporting requirements are necessary to demonstrate compliance with these emissions limitations.
- g. The emissions from the digestion process shall be vented to the flare during any instance when biogas is present in the feedstock equilibrium tank, primary digester, or dual purpose tank and emissions unit P002 is not firing biogas.
- h. The permittee shall properly install, operate, and maintain a device to continuously monitor the 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.
- i. The emission limitation specified by this rule is less stringent than the emission limitation established under ORC 3704.03(T).

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 have a minimum heat content of 500 Btu/scf.
 - (3) 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 maintain daily records of all periods of time during which the electric arc system was inoperable when biogas was present in the feedstock equilibrium tank, primary digester, or dual purpose tank, and emissions unit P002 was not firing biogas.
 - (2) The permittee shall monitor and record digester gas hydrogen sulfide concentrations using one of the two following options:

Option 1: Weekly gas detector tube sampling. The accuracy of gas detector tubes is presumed to be $\pm 10\%$, 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 H₂S content of the digester gas. The permittee shall properly install, operate, and maintain a continuous digester gas H₂S monitoring device and recorder that measures and records the H₂S concentrations in the digester gas when the emissions unit is in operation, including periods of startup and shutdown. The H₂S monitoring device and recorder shall be capable of satisfying the performance requirements specified in 40 CFR Part 60, Appendix B, Performance Specification 7 and shall be capable of accurately measuring the H₂S concentration. The H₂S 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 90% of the allowable concentration, or the lower limit of the accuracy of the monitoring method as determined by the permittee, 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:

- a. a description of the corrective action;
- b. the date the corrective action was completed;
- c. the date and time the deviation ended;
- d. the total period of time (in minutes) during which there was a deviation;
- e. hydrogen sulfide readings immediately after the corrective action was implemented; and
- f. 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.

- (3) The permittee shall sample, analyze and record monthly the heat content of the digester gas, in Btu / scf.
- (4) The permittee shall monitor and record the volume of biogas flared in standard cubic feet per year, and shall calculate and record the annual heat input to the flare in million Btu.
- (5) The permittee shall calculate and record the annual NO_x emissions from this emissions unit.
- (6) The permittee shall calculate and record the combined annual NO_x emissions from emissions units B001, P001, and P002.

e) Reporting Requirements

- (1) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.
- (2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director 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.

- (3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements in d)(1), d)(2), d)(3), and d)(6):
- a. all periods of time during which the flare's electric arc ignition system was not functioning properly when biogas was present in the feedstock equilibrium tank, primary digester, or dual purpose tank, and emissions unit P002 was not firing biogas;
 - b. each month during which digester gas with a minimum heat content of less than 500 Btu / scf was burned in this emissions unit;
 - c. each period during which digester gas containing an H₂S concentration greater than allowed by c)(1) was burned; and
 - d. each exceedance of the 24.9 tons per year NO_x emission limitation for B001, P001 and P002 combined.
- f) Testing Requirements
- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:
- a. Emission Limitation:
CO emissions shall not exceed 0.185 pound per million Btu of actual heat input.
Applicable Compliance Method:
This emission limitation was established based on manufacturer's emission data. If required, the permittee shall demonstrate compliance using Methods 1 thru 4, 10 and 19 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
 - b. Emission Limitation:
NO_x emissions shall not exceed 0.06 pound per million Btu of actual heat input.
Applicable Compliance Method:
The short-term emission limitation is established based on manufacturer's emission data. If required, the permittee shall demonstrate compliance using Methods 1 thru 4 and 7 or 7E of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
 - c. Emission Limitation:
NO_x emissions shall not exceed 3.7 tons per year.

Applicable Compliance Method:

The annual emission limitation was developed by the following calculation. Multiply the short-term emission limitation (0.06 lb/mmBtu) by the maximum heat input (14.2 mmBtu/hr), multiply by the maximum annual hours of operation (8,760 hrs/yr) and divide by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the pound per million Btu limitation is maintained.

d. Emission Limitation:

PE shall not exceed 0.002 pound per million Btu of actual heat input.

Applicable Compliance Method:

The short-term emission limitation is established based on manufacturer's emission data. If required, the permittee shall demonstrate compliance using Methods 1 thru 5 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

Emission Limitation:

PE shall not exceed 0.12 tons per year.

Applicable Compliance Method:

The annual emission limitation was developed by the following calculation. Multiply the short-term emission limitation (0.002 lb/mmBtu) by the maximum heat input (14.2 mmBtu/hr), multiply by the maximum annual hours of operation (8,760 hrs/yr) and divide by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the pound per million Btu limitation is maintained.

e. Emission Limitation:

SO₂ emissions shall not exceed 0.13 pound per million Btu of actual heat input when the digester operation reaches steady state conditions.

SO₂ emissions shall not exceed 0.26 pound per million Btu of actual heat input during the digester commissioning phase.

Applicable Compliance Method:

The permittee shall demonstrate compliance with the emissions limitation through the required monitoring and recordkeeping in d)(2) and using the following equation:

1
$$SO_2 = ppm_v \times (\text{molecular weight}) \times (1/\text{ideal gas volume}) \times (1/\text{heating value}) \times (10^6 \text{ Btu} / \text{mmBtu})$$

Where:

E = SO₂ emissions rate, pounds per million Btu of actual heat input

ppm_v = concentration of H₂S in digester gas, from d)(2)

molecular weight = 64 lb / lb-mole

ideal gas volume = 379 ft³ / lb-mole (at 70 degrees F)

heating value = heating value as recorded in d)(3)

If required, the permittee shall demonstrate compliance with this emission limitation using Methods 1 thru 4 and 6 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

f. Emission Limitation:

VOC emissions shall not exceed 0.002 lb/mmBtu of actual heat input and 0.12 ton per year.

Applicable Compliance Method:

This short-term emission limitation is based on manufacturer's emission data. If required, the permittee shall demonstrate compliance using Methods 1 thru 4 and 25 or 25A of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

The annual emission limitation was developed by the following calculation. Multiply the short-term emission limitation (0.002 lb/mmBtu) by the maximum heat input (14.2 mmBtu/hr), multiply by the maximum annual hours of operation (8,760 hrs/yr) and divide by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the pound per million Btu limitation is maintained.

g. Emission Limitation:

The combined NO_x emissions from emissions units B001, P001, and P002 shall not exceed 24.9 tons per year.

Applicable Compliance Method:

Compliance with this emission limitation may be demonstrated by the records required by d)(6).

- (2) 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.

- g) Miscellaneous Requirements
 - (1) None.



4. P002, 1.6 MW Generator (CHPU)

Operations, Property and/or Equipment Description:

Combined Heat and Process Unit consisting of a 2,333 HP digester gas/natural gas fueled spark ignition internal combustion engine powering a 1.6 MW electrical generator with heat recovery

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. b)(1)d. and d)10.

(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.	ORC 3704.03(T)	Carbon monoxide (CO) emissions shall not exceed 2.5 grams per horsepower-hour (g / hp-hr) when combusting digester gas. Carbon monoxide (CO) emissions shall not exceed 2.0 grams per horsepower-hour g / hp-hr when combusting natural gas. Nitrogen oxides (NO _x) emissions shall not exceed 1.0 g / hp-h when combusting digester gas or natural gas. Sulfur dioxide (SO ₂) emissions from the combustion of digester gas shall not exceed 0.13 pound per million Btu of



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>actual heat input when the digester operation reaches steady state conditions.</p> <p>Sulfur dioxide (SO₂) emissions from the combustion of digester gas shall not exceed 0.26 pound per million Btu of actual heat input during the digester commissioning phase.</p> <p>Volatile organic compound (VOC) emissions shall not exceed 0.84 g / hp-hr when combusting digester gas.</p> <p>Volatile organic compound (VOC) emissions shall not exceed 0.7 g / hp-hr when combusting natural gas when combusting natural gas.</p>
b.	OAC rule 3745-31-05(A)(3), as effective 11/30/2001	<p>Particulate emissions (PE) shall not exceed 0.006 pound per million Btu of actual heat input and 0.37 ton per year when burning digester gas or natural gas.</p> <p>See b)(2)a.</p>
c.	OAC rule 3745-31-05(A)(3)(a)(ii) as effective 12/1/2006	See b)(2)b.
d.	OAC rule 3745-31-05(E)	The combined NO _x emissions from emissions units B001, P001, and P002 shall not exceed 24.9 tons per year.
e.	OAC rule 3745-17-07(A)(1)	Visible particulate emissions (PE) from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average, except as provided by rule.
f.	OAC rule 3745-17-11(B)(5)	PE shall not exceed 0.062 pound per million Btu of actual heat input.
g.	OAC rule 3745-18-06(G)	See b)(2)d.
h.	OAC rule 3745-110-(A)(2)(b) OAC rule 3745-110-03(F)(1)	<p>Exempt</p> <p>This emissions unit is subject to a more stringent new source performance standard under 40 CFR Part 60.</p>
i.	40 CFR Part 60, Subpart JJJJ (40 CFR 60.4230-4248)	See b)(2)c.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	[In accordance 40 CFR 60.4233(e), this emissions unit is a stationary spark ignition lean burn internal combustion engine (ICE) with a maximum engine power of 2,333 horsepower fueled with biogas or natural gas.]	The CO and NO _x emissions limitations specified by this rule are less stringent than the limitations established pursuant to ORC 3704.03(T). The VOC emission limitation specified by this rule is equal to the limitation established pursuant to ORC 3704.03(T).
j.	40 CFR 60.1-19 (40 CFR 62.4246)	Table 3 to Subpart JJJJ of 40 CFR Part 60 – Applicability of General Provisions to Subpart JJJJ shows which parts of the General Provisions in 40 CFR 60.1-19 apply.
k.	40 CFR Part 63, Subpart ZZZZ (40 CFR 63.6590(c)(1))	A new or reconstructed areas source operating in compliance with Part 60 of Subpart JJJJ is the demonstration of compliance for 40 CFR Part 63 Subpart ZZZZ. No further requirements apply under this subpart.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B. 265 changes), such that BAT is no longer required by State regulations for NAAQS pollutant less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio’s State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then these emission limits/control measures no longer apply.
- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

The Best Available Technology (BAT) requirements under OAC rule 3745-31-05(A)(3) do not apply to the particulate emissions from this air contaminant source since the uncontrolled potential to emit for emissions of PE is less than 10 tons per year.
- c. The 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 spark ignition, internal combustion engines.

d. The emissions limitations specified by this rule are less stringent than the emissions limitations established under ORC 3704.03(T).

c) Operational Restrictions

- (1) The permittee shall only burn natural gas or digester gas with a minimum heat content of 500 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 restrictions required under 40 CFR Part 60, Subpart JJJJ, including the following sections.

60.4243(b)	compliance requirements
60.4343(g)	air-to-fuel controller requirements

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.

- (2) The permittee may, upon receipt of written approval from the Ohio EPA, 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.
- (3) The permittee shall monitor and record the volume of biogas combusted in this emissions unit in standard cubic feet per year, and shall calculate and record the annual heat input to this emissions unit in million Btu.
- (4) For each day during which the permittee burns a fuel other than biogas or natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (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:

Option 1: Weekly gas detector tube sampling. The accuracy of gas detector tubes is presumed to be $\pm 10\%$, 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 H₂S content of the digester gas. The permittee shall properly install, operate, and maintain a continuous digester gas H₂S monitoring device and recorder that measures and records the H₂S concentrations in the digester gas when the emissions unit is in operation, including periods of startup and shutdown. The H₂S monitoring device and recorder shall be capable of satisfying the performance requirements specified in 40 CFR Part 60, Appendix B, Performance Specification 7 and shall be capable of accurately measuring the H₂S concentration. The H₂S 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 90% of the allowable concentration, or the lower limit of the accuracy of the monitoring method as determined by the permittee, as measured by either of the above monitoring options, the

permittees 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:

- a. a description of the corrective action;
- b. the date the corrective action was completed;
- c. the date and time the deviation ended;
- d. the total period of time (in minutes) during which there was a deviation;
- e. hydrogen sulfide readings immediately after the corrective action was implemented; and
- f. 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) The permittee shall sample, analyze and record monthly the heat content of the digester gas, in Btu / scf.
- (7) The permittee shall calculate and record the annual NO_x emissions from this emissions unit.
- (8) The permittee shall calculate and record the combined annual NO_x emissions from emissions units B001, P001, and P002.
- (9) The permittee shall comply with the applicable monitoring and record keeping requirements required 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

(10) 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.

e) Reporting Requirements

- (1) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.
- (2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the Director 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.
- (3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements in d)(1), d)(4), d)(5), d)(6), and d)(8):
 - a. all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
 - b. any corrective actions taken to minimize or eliminate the visible particulate emissions.
 - c. each day during which a fuel other than natural gas or digester gas was burned in this emissions unit;
 - d. each month during which digester gas with a minimum heat content of less than 500 Btu / scf was burned in this emissions unit;
 - e. each period during which digester gas containing an H₂S concentration greater than allowed by c)(2) was burned;



- f. each exceedance of the 24.9 tons per year NOx emission limitation for B001, P001 and P002 combined; and
(4) The permittee shall submit notifications and reports to the Toledo Division of Environmental Services as are required pursuant to 40 CFR Part 60, Subpart JJJJ, including the following sections.

Table with 2 columns: Regulatory Section and Description. Row 1: 60.4245(c) - initial notification for non-certified engines. Row 2: 60.42445(d) - performance test reporting requirements.

These reports and other such notifications shall be submitted to the following addresses:

Ohio Environmental Protection Agency
DAPC - Permit Management Unit
Lazarus Government Center
P.O. Box 1049
Columbus, OH 43216-1049

and

Toledo Division of Environmental Services
348 South Erie Street
Toledo, Ohio 43604-8633

f) Testing Requirements

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

a. Emission Limitation:

CO emissions shall not exceed 2.5 g / hp-hr when combusting biogas. CO emissions shall not exceed 2.0 lb/mmBtu when combusting natural gas.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance using the methods and procedures specified in 40 CFR 60.4244. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

b. Emission Limitation:

NOx emissions shall not exceed 1.0 g / hp-hr when burning digester gas or natural gas.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance using the methods and procedures specified in 40 CFR 60.4244. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

c. Emission Limitation:

PE shall not exceed 0.006 pound per million Btu of actual heat input when burning digester gas or natural gas.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance using Methods 1 thru 5 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

d. Emission Limitation:

PE shall not exceed 0.75 ton per year when burning digester gas or natural gas.

Applicable Compliance Method:

The annual emission limitation was developed by multiplying the short-term emission limitation (0.006 lb/mmBtu) by the maximum heat input (14.2 mmBtu/hr), multiplying by the maximum annual hours of operation (8,760 hours per year), and dividing by 2,000 pounds per ton. Therefore, compliance with the annual limitation shall be demonstrated if compliance with the pound per million Btu limitation is maintained.

e. Emission Limitation

SO₂ emissions shall not exceed 0.13 pound per million Btu of actual heat input when the digester operation reaches steady state conditions.

SO₂ emissions shall not exceed 0.26 pound per million Btu of actual heat input during the digester commissioning phase.

Applicable Compliance Method:

The permittee shall demonstrate compliance with the emissions limitation through the required monitoring and recordkeeping in d)(2) and using the following equation:

$$SO_2 = ppm_v \times (\text{molecular weight}) \times (1/\text{ideal gas volume}) \times (1/\text{heating value}) \times (10^6 \text{ Btu} / \text{mmBtu})$$

Where:

E = SO₂ emissions rate, pounds per million Btu of actual heat input

ppm_v = concentration of H_2S in digester gas, from d)(2)

molecular weight = 64 lb / lb-mole

ideal gas volume = 379 ft^3 / lb-mole (at 70 degrees F)

heating value = heating value as recorded in d)(3)

If required, the permittee shall demonstrate compliance with this emission limitation using Methods 1 thru 4 and 6 of 40 CFR Part 60, Appendix A. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

f. Emission Limitation:

VOC emissions shall not exceed 0.84 g / hp-hr when burning digester gas. VOC emissions shall not exceed 0.7 g / hp-hr when burning digester gas.

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance using the methods and procedures specified in 40 CFR 60.4244. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

g. Emission Limitation:

The combined NO_x emissions from emissions units B001, P001, and P002 shall not exceed 24.9 tons per year.

Applicable Compliance Method:

Compliance with this emission limitation may be demonstrated by the records required by d)(8).

g) Miscellaneous Requirements

(1) None.