



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

7/26/2016

Certified Mail

Tom Dempsey
 City of Dayton Wastewater Treatment Plt
 2800 GUTHRIE ROAD
 Dayton, OH 45417

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

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL AND OPERATE

Facility ID: 0857100983
 Permit Number: P0109390
 Permit Type: Renewal
 County: Montgomery

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install and Operate (PTIO) for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the permit. A public notice will appear in the Ohio Environmental Protection Agency (EPA) Weekly Review and the local newspaper, Dayton Daily News. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically 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. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall
 Permit Review/Development Section
 Ohio EPA, DAPC
 50 West Town Street Suite 700
 PO Box 1049
 Columbus, Ohio 43216-1049

and Regional Air Pollution Control Agency
 117 South Main Street
 Dayton, OH 45422-1280

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Regional Air Pollution Control Agency at (937)225-4435.

Sincerely,

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

Cc: U.S. EPA Region 5 *Via E-Mail Notification*
 RAPCA; Indiana; Kentucky

Permit Strategy Write-Up

1. Check all that apply:

 X Synthetic Minor Determination

Netting Determination

2. Source Description:

The City of Dayton Waste Water Treatment Plant (Dayton WWTP) is a publicly owned treatment works that treats wastewaters from residential and industrial users in the City of Dayton. The WWTP has a designed capacity of 72 million gallons per day (MGD); 163,523 pounds per day of Biochemical Oxygen Demand (BOD); and projected maximum future facility digester gas generation of 2,000,000 cubic feet/day.

Digester gas (a mixture of carbon dioxide and methane with other trace compounds including hydrogen sulfide), is generated from the anaerobic digestion process that is used to reduce the BOD of the effluent stream. The volume of digester gas generated by the anaerobic digesters is directly related to the organic loading that the wastewater treatment plant receives daily.

3. Facility Emissions and Attainment Status:

The Dayton WWTP is located in Montgomery County. Montgomery County has achieved attainment status for all National Ambient Air Quality Standards (NAAQS). The Dayton WWTP burns the digester gas in cogeneration engines, hot water boilers, or flares. The potential emissions of NOx (134 tons/year), CO (160 tons/year) and SO2 (190 tons/year) exceed Title V major source thresholds. The City of Dayton has elected to implement synthetic minor emissions limitations (94.0 tons NOx, 99.0 tons SO2, 99.0 tons CO) on a rolling 365-day basis to avoid Title V permitting.

4. Source Emissions:

Potential and synthetic minor emissions limitations for the Dayton WWTP are listed in the table below:

Source	Maximum Capacity (Potential) (tons/year)			2,000,000 cubic feet digester gas per day (synthetic minor limit) (tons/rolling 365- days)		
	NOx	CO	SO2	NOx	CO	SO2**
PSA System						
Tail Gas Flare	0.94	17.7	44.7	0.78	14.7	37.2
Boiler	6.29	5.28	0.04	6.29	5.28	0.04
Engine	63.1	41.5	0.04	26.2	17.2	0.02
Excess Digester Gas						
Engine(s)	38.3	25.2	21.6	38.3	25.2	14.0
Engine natural gas*	0.73	4.15	0.004	6.31	4.15	0.004
Boiler	12.6	10.6	37.2	10.2	8.58	19.6
Flares	12.3	56.1	86.3	0.31	1.40	1.40
Total	134	160	190	88.4	76.5	72.3

*The engines require at least 10% natural gas in a preheat chamber when burning digester gas.

**SO2 emissions are based on a worst case H2S concentration of 2,000 ppm.

The potential emissions are based on the maximum heat input capacity of each piece of equipment. The synthetic minor limitations are based on the following process restrictions:

- That limit the digester gas generation rate to 2,000,000 cubic feet per day;
- A Pressure Swing Adsorption (PSA) to separate methane with a maximum capacity of 1,000,000 cubic feet per day (510,000 cubic feet methane and 490,000 cubic feet tail gas);
- Hydrogen sulfide (H₂S) concentration of 1,300 ppmw (or 1,000 ppmv); and

Actual digester generation rates rarely exceed 1,000,000 cubic feet per day and H₂S concentrations are typically 100 – 400 ppmw.

All of the calculations above are based on heat value of 1,020 Btu per cubic foot for natural gas and 620 Btu per cubic foot for digester gas.

5. Conclusion:

By implementing the process restrictions described above and complying with rolling 12-month emissions limitations of:

- 88.4 tons for NO_x;
- 76.5 tons for CO; and
- 72.3 tons for SO₂.

The City of Dayton will preclude compliance with Title V major source permitting requirements.

6. Please provide additional notes or comments as necessary:

None

7. Total Permit Allowable Emissions Summary (for informational purposes only):

<u>Pollutant</u>	<u>Tons Per Year</u>
NO _x	88.4
CO	76.5
SO ₂	72.3

PUBLIC NOTICE

The following matters are the subject of this public notice by the Ohio Environmental Protection Agency. The complete public notice, including any additional instructions for submitting comments, requesting information, a public hearing, or filing an appeal may be obtained at: <http://epa.ohio.gov/actions.aspx> or Hearing Clerk, Ohio EPA, 50 W. Town St., Columbus, Ohio 43215. Ph: 614-644-2129 email: HClerk@epa.ohio.gov

Draft Air Pollution Permit-to-Install and Operate Renewal
City of Dayton Wastewater Treatment Plt

2800 GUTHRIE ROAD,, Dayton, OH 45417

ID#:P0109390

Date of Action: 7/26/2016

Permit Desc:FEPTIO Renewal for natural/digester gas combustion sources: three spark ignition engines, three hot water boilers and three flares..

The permit and complete instructions for requesting information or submitting comments may be obtained at: <http://epa.ohio.gov/dapc/permitsonline.aspx> by entering the ID # or: Andrew Weisman, Regional Air Pollution Control Agency, 117 South Main Street, Dayton, OH 45422-1280. Ph: (937)225-4435



DRAFT

**Division of Air Pollution Control
Permit-to-Install and Operate
for
City of Dayton Wastewater Treatment Plt**

Facility ID:	0857100983
Permit Number:	P0109390
Permit Type:	Renewal
Issued:	7/26/2016
Effective:	To be entered upon final issuance
Expiration:	To be entered upon final issuance



Division of Air Pollution Control
Permit-to-Install and Operate
for
City of Dayton Wastewater Treatment Plt

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Draft Permit-to-Install and Operate
City of Dayton Wastewater Treatment Plt
Permit Number: P0109390
Facility ID: 0857100983

Effective Date: To be entered upon final issuance

Authorization

Facility ID: 0857100983
Application Number(s): A0042944, A0043119, A0054547
Permit Number: P0109390
Permit Description: FEPTIO Renewal for natural/digester gas combustion sources: three spark ignition engines, three hot water boilers and three flares.
Permit Type: Renewal
Permit Fee: \$0.00 *DO NOT send payment at this time, subject to change before final issuance*
Issue Date: 7/26/2016
Effective Date: To be entered upon final issuance
Expiration Date: To be entered upon final issuance
Permit Evaluation Report (PER) Annual Date: To be entered upon final issuance

This document constitutes issuance to:

City of Dayton Wastewater Treatment Plt
2800 GUTHRIE ROAD
Dayton, OH 45417

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:

Regional Air Pollution Control Agency
117 South Main Street
Dayton, OH 45422-1280
(937)225-4435

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: P0109390

Permit Description: FEPTIO Renewal for natural/digester gas combustion sources: three spark ignition engines, three hot water boilers and three flares.

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

Emissions Unit ID:	P004
Company Equipment ID:	Flare Burner #3
Superseded Permit Number:	P0107173
General Permit Category and Type:	Not Applicable

Group Name: Cogen Units

Emissions Unit ID:	B007
Company Equipment ID:	Cogen Unit #1
Superseded Permit Number:	P0093412
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B008
Company Equipment ID:	Cogen Unit #2
Superseded Permit Number:	P0093413
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B009
Company Equipment ID:	Cogen Unit #3
Superseded Permit Number:	P0093414
General Permit Category and Type:	Not Applicable

Group Name: Gas fired hot water boilers

Emissions Unit ID:	B010
Company Equipment ID:	DB - 1
Superseded Permit Number:	08-04195
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B011
Company Equipment ID:	DB - 2
Superseded Permit Number:	08-04195
General Permit Category and Type:	Not Applicable
Emissions Unit ID:	B012
Company Equipment ID:	DB - 3
Superseded Permit Number:	08-04195
General Permit Category and Type:	Not Applicable

Group Name: Waste Digester Gas Flares

Emissions Unit ID:	P002
Company Equipment ID:	Flare Burner #1
Superseded Permit Number:	P0093415
General Permit Category and Type:	Not Applicable



Draft Permit-to-Install and Operate
City of Dayton Wastewater Treatment Plt

Permit Number: P0109390

Facility ID: 0857100983

Effective Date: To be entered upon final issuance

Emissions Unit ID:	P003
Company Equipment ID:	Flare Burner #2
Superseded Permit Number:	P0093416
General Permit Category and Type:	Not Applicable



Draft Permit-to-Install and Operate
City of Dayton Wastewater Treatment Plt
Permit Number: P0109390
Facility ID: 0857100983
Effective Date: To be entered upon final issuance

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 Regional Air Pollution Control Agency in accordance with OAC rule 3745-15-06(B). Malfunctions that must be reported are those that result in emissions that exceed permitted emission levels. It is your responsibility to evaluate control equipment breakdowns and operational upsets to determine if a reportable malfunction has occurred.

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

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

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

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

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

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

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

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

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

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



change in ownership or operator. Any transferee of this permit must assume the responsibilities of the transferor permit holder.

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

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

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

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



Draft Permit-to-Install and Operate
City of Dayton Wastewater Treatment Plt

Permit Number: P0109390

Facility ID: 0857100983

Effective Date: To be entered upon final issuance

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) B.2. through B.9.
2. Synthetic Minor Emissions Limitations

The combined air contaminant emissions from cogeneration engines (Ohio EPA emissions units B007, B008 and B009), boilers (Ohio EPA emissions units B010, B011 and B012), flares (Ohio EPA emissions units P002 and P003) and Pressure Swing Adsorption (PSA) system tail gas flare (Ohio EPA emissions unit P004) as a rolling 12-month basis shall not exceed:

 - a) 88.4 tons of nitrogen oxides (NO_x);
 - b) 72.3 tons of sulfur dioxide (SO₂); and
 - c) 76.5 tons of carbon monoxide (CO).
3. Operational Restrictions
 - a) The combined volume of digester gas burned or processed in cogeneration engines (Ohio EPA emissions units B007, B008 and B009), boilers (Ohio EPA emissions units B010, B011 and B012), flares (Ohio EPA emissions units P002 and P003) and PSA system tail gas flare (Ohio EPA Emissions unit P004) shall not exceed a combined total of 2,000,000 cubic feet per day.
 - b) The volume of digester gas processed in the PSA system shall not exceed 1,000,000 cubic feet per day (production of 510, 000 cubic feet pipeline natural gas plus 490,000 cubic feet of tail gas).
 - c) The hydrogen sulfide concentration of the digester gas shall not exceed 1,300 parts per million by weight (ppmw) or 1,000 ppm by volume (ppmv).
4. The permittee shall collect and record the following information each day:
 - a) The volume of digester gas, in cubic feet, gas processed in the PSA system;
 - b) The volume of digester gas, in cubic feet, burned or processed in each emissions unit (see the monitoring and record keeping requirements for each emissions unit in Section C of this permit);

- c) The combined volume of digester gas burned or processed, in cubic feet, in emissions units B007, B008, B009, B010, B011, B012, P002, P003 and P004 as a combined total (the sum of all records from 4.b) above for each day);
 - d) The volume of natural gas (including pipeline quality natural gas from the PSA system), in cubic feet, burned in each emissions unit (see the monitoring and record keeping requirements for each emissions unit in Section C of this permit);
 - e) The combined volume of natural gas burned, in cubic feet in emissions units B007, B008, B009, B010, B011, and B012 as a combined total (the sum of all records from 4.d) above for each day);
5. The permittee shall collect and record the following information each month:
- a) The air contaminant emissions rate for each emissions unit, in pounds or tons, (calculated according to the monitoring and recordkeeping requirements for each emissions unit in Section C. of this permit) for:
 - (1) NO_x;
 - (2) SO₂; and
 - (3) CO.
 - b) The combined air contaminant emissions rate from emissions units B007, B008, B009, B010, B011, B012, P002, P003 and P004, in tons, (the sum of the monthly emissions rates calculated according to 5.a) above) for:
 - (1) NO_x;
 - (2) SO₂; and
 - (3) CO;
 - c) The combined air contaminant emissions rate from emissions units B007, B008, B009, B010, B011, B012, P002, P003 and P004, in tons, as a rolling 12-month total (the sum of the monthly emissions from 5.b) for the previous 12-months) for:
 - (1) NO_x;
 - (2) SO₂; and
 - (3) CO.
6. The permittee shall monitor and record the hydrogen sulfide concentration of the digester gas on a recurring three day basis using gas detector tubes. The accuracy of gas detector tubes is presumed to be ± 25%, 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.

Whenever the monitored value for hydrogen sulfide is within the accuracy limits of the detector tubes (e.g., measurements higher than 1,000 ppmw or 750 ppmv) 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. The permittee shall monitor and record the carbon dioxide (CO₂) concentration of the digester gas, in percent, on a daily basis.
8. The permittee shall collect and record the following information each day:
 - a) The heat value of the digester gas, in Btu/cubic foot, using the following calculation:
Heat value (Btu/cubic foot) = (1 - %CO₂) x 1,020 Btu/cubic foot*
Heat value (MMBtu/cubic foot) = Heat value in Btu/cubic foot / 1 x 10⁶ Btu/MMBtu
*The nominal heat value of methane (natural gas)
 - b) The density of digester gas, in pound per cubic foot, using the following calculation:
(%CO₂)(0.1225 pound CO₂/cubic foot CO₂) + (%methane*)(0.0446 pound methane/cubic foot methane)

$$*\%methane = (1 - \%CO_2)$$

In addition to the daily heat value and density calculations, the permittee shall collect and analyze a sample of the digester gas to determine the heat value and density according to the appropriate ASTM methods on a recurring six month basis.

9. The permittee shall submit quarterly deviation (excursion) reports, in accordance with the Standard Terms and Conditions of this permit, of the following information:
- a) all deviations (excursions) of the following emission limitations and operational restrictions that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
 - (1) Any exceedance of the combined 2,000,000 cubic feet per day digester gas process restriction;
 - (2) Any exceedance of the of the 1,000,000 cubic feet per day process restriction for the PSA system;
 - (3) Any record showing that the hydrogen sulfide concentration of the digester gas was greater than 1,300 ppmw or 1,000 ppmv;
 - (4) Any exceedance of the 88.4 tons rolling 12-month NO_x emissions limitation and the actual rolling 12-month emissions rate for that month;
 - (5) Any exceedance of the 72.3 tons rolling 12-month SO₂ emissions limitation and the actual rolling 12-month emissions rate for that month; and
 - (6) Any exceedance of the 76.5 tons rolling 12-month CO emissions limitation and the actual rolling 12-month emissions rate for that month.
 - b) the probable cause of each deviation (excursion);
 - c) any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
 - d) the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

10. The Ohio EPA has determined that this facility is subject to the requirements of 40 CFR Part 63 Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (RICE). At this time, the Ohio EPA is not accepting delegation for area sources subject to the Maximum Achievable Control Technology NESHAP (MACT) rules. The requirements of these rules, that are applicable to the area sources for hazardous air



pollutants (HAP) identified in this permit, shall be enforceable by U.S. EPA. Region 5. The complete requirements of this rule (including the Part 63 General Provisions) may be accessed via the Internet from the Electronic code of Federal Regulations (e-CFR) website <http://www.ecfr.gov/> or by contacting the appropriate Ohio EPA District Office or Local Air Agency.

11. The Ohio EPA has determined that this facility is subject to the requirements of 40 CFR Part 63 Subpart JJJJJJ, the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Area Sources: Industrial, Commercial, and Institutional Boilers;. At this time, the Ohio EPA is not accepting delegation for area sources subject to the Maximum Achievable Control Technology NESHAP (MACT) rules. The requirements of these rules, that are applicable to the area source(s) for hazardous air pollutants (HAP) identified in this permit, shall be enforceable by U.S. EPA. Region 5. The complete requirements of this rule (including the Part 63 General Provisions) may be accessed via the Internet from the Electronic code of Federal Regulations (e-CFR) website <http://www.ecfr.gov/> or by contacting the appropriate Ohio EPA District Office or Local Air Agency. Emissions units B010, B011 and B012 are "gas-fired boilers" as defined in 40 CFR 63.11237 and are not subject to any requirements of the rule as specified in 40 CFR 11195(e).



Draft Permit-to-Install and Operate
City of Dayton Wastewater Treatment Plt

Permit Number: P0109390

Facility ID: 0857100983

Effective Date: To be entered upon final issuance

C. Emissions Unit Terms and Conditions

1. P004, PSA Tail Gas Burner #3

Operations, Property and/or Equipment Description:

PSA System Tail Gas 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. b)(1)b.
- 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) and ORC 3704.03(T)	<p>The carbon monoxide (CO) emissions from this emissions unit shall not exceed 1.22 tons per month averaged over a rolling 12-month period.</p> <p>The sulfur dioxide (SO₂) emissions from this emissions unit shall not exceed 3.10 tons per month averaged over a rolling 12-month period.</p> <p>The requirements of this rule also includes compliance with OAC rules 3745-17-07(A) and 3745-31-05(D).</p> <p>See b)(2)a.</p>
b.	OAC rule 3745-31-05(D) Synthetic Minor to avoid Title V	See Sections B.2. through B.9.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
c.	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.

(2) Additional Terms and Conditions

a. The CO and SO2 emissions limitations were established to reflect the potential to emit for this emissions unit. Therefore, it is not necessary to develop recordkeeping and/or reporting requirements to ensure compliance with this short term emissions limitation.

c) Operational Restrictions

(1) The volume of digester gas processed in the Pressure Swing Adsorption (PSA) system shall not exceed 1,000,000 cubic feet per day (production of 510, 000 cubic feet pipeline natural gas plus 490,000 cubic feet of tail gas).

d) Monitoring and/or Recordkeeping Requirements

(1) The permittee shall collect and record the following information each day for this emissions unit:

- a. The volume, in cubic feet, of digester gas processed in the PSA system;
- b. The volume, in cubic feet, of pipeline quality natural gas (methane) generated by the PSA system;
- c. The volume, in cubic feet, of PSA tail gas burned, in this emissions unit (the volume of digester gas from d)(1)a. minus the volume of methane recovered from the PSA system d)(1)b.);

(2) The permittee shall collect and record the following information each month as a sum of the daily records from d)(1), for the purpose of determining rolling 12-month emissions rates as required in compliance with the synthetic minor restrictions of OAC rule 3745-31-05(D):

- a. The volume, in cubic feet, of:
 - i. Digester gas processed;
 - ii. Pipeline quality natural gas generated; and
 - iii. The volume of tail gas burned.

As a sum of the daily records from d)(1) for each month.

- b. The CO emissions, in pounds or tons (the volume of PSA tail gas from d)(2)a.iii. multiplied by 1.6425×10^{-4} pound CO per cubic foot of tail gas), see f)(1)a. for emission factor derivation);
 - c. The SO₂ emissions, in pounds or tons (the volume of PSA tail gas from d)(2)a.iii. multiplied by the heat content value of 223.4 Btu/cubic foot and 1.86×10^{-6} pound/Btu), see f)(1)b. for emission factor derivation.
- (3) The permittee shall perform daily checks, when the emissions unit is in operation 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 emissions incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.
- e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify:
- a. all deviations (excursions) of the following emission limitations, operational restrictions and/or control device operating parameter limitations that restrict the potential to emit (PTE) of any regulated air pollutant and have been detected by the monitoring, record keeping and/or testing requirements in this permit:
 - i. any exceedance of the 1,000,000 cubic feet per day PSA system process restriction.
 - b. the probable cause of each deviation (excursion);
 - c. any corrective actions that were taken to remedy the deviations (excursions) or prevent future deviations (excursions); and
 - d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September),



unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- (2) The permittee shall submit annual reports that summarize the annual:
 - a. Volume, in million cubic feet, of digester gas processed in the PSA system;
 - b. Volume, in million cubic feet, of tail gas burned in the PSA flare;
 - c. The CO emissions, in tons; and
 - d. The SO₂ emissions, in tons.

The reports shall be submitted by April 15 of each year. This reporting requirement may be satisfied by including and identifying the data for each emissions unit in the annual Synthetic Minor Title V Fee Emission Report.

- (3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements for visible emissions in term number d)(2) above:
 - 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 eliminate the visible particulate emissions.
- (4) 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 PER shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.

All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the District Office or Local Air Agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations specified in these terms and conditions shall be determined in accordance with the following methods:



a. Emissions Limitation -

The CO emissions from this emissions unit shall not exceed 1.22 tons per month averaged over a rolling 12-month period.

Applicable Compliance Method –

This emissions limitation was developed by multiplying the maximum 12-month tail gas generation capacity of the PSA system (178.85 million cubic feet*) multiplied by the emission factor of (164.25 pounds CO per million cubic foot of tail gas) divided by 2,000 pounds per ton and divided by 12.

*The 490,000 cubic feet per day maximum tail gas generation rate multiplied by 365 days/year divided by 1,000,000.

The CO emission factor (164.25 pounds CO per million cubic feet of tail gas) was derived by multiplying the methane concentration of the tail gas (21.9%) by the emission factor of 750 pounds CO/million cubic feet of methane (U.S. EPA, AP-42, Table 2.4-5, (11/98)).

b. Emissions Limitation -

The SO2 emissions from this emissions unit shall not exceed 3.10 tons per month averaged over a rolling 12-month period.

Applicable Compliance Method –

This emissions limitation was developed by multiplying the maximum 12-month tail gas generation capacity of the PSA system (178.85 million cubic feet) multiplied by the heat content value of 223.4 million Btu/ million cubic feet of tail gas and the emission factor of (1.86 pounds/million Btu) divided by 2,000 pounds per ton and divided by 12.

The SO2 emission factor (EF), was determined according to OAC rule 3745-18-04(F)(3):

$$EF (\text{lbs/mmBtu}) = 1,000,000 / H \times D \times S \times 1.998$$

Where:

H = heat content of the fuel (223.4 Btu/cubic foot for tail gas);

D = density of the fuel (0.105 pound/cubic foot for tail gas);

S = decimal fraction of sulfur (0.00198 for tail gas); and

1.998 conversion factor, no units.

$$EF = 1.86 \text{ pounds/million Btu}$$



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c. Emissions Limitation -

Visible particulate emissions from the stack serving this emissions unit shall not exceed 20 percent opacity as a six-minute average.

Applicable Compliance Method –

If requested, compliance shall be determined by visible emission readings performed in accordance with OAC rule 3745-17-03(B)(1) and U.S. EPA Reference Method 9.

g) Miscellaneous Requirements

(1) None.

2. Emissions Unit Group -Cogen Units: B007,B008,B009,

EU ID	Operations, Property and/or Equipment Description
B007	Cogen Unit #1 - Internal Combustion Engine, digester or natural gas
B008	Cogen Unit #2 - Internal Combustion Engine, digester or natural gas
B009	Cogen Unit #3 - Internal Combustion Engine, digester or natural gas

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. b)(1)b.

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) PTI 08-1294 issued March 29, 1989	<p>The nitrogen oxides (NOx) emissions from each emissions unit shall not exceed 5.93 pounds per hour and 26.0 tons per year.</p> <p>The sulfur dioxide (SO2) emissions from each emissions unit shall not exceed 5.15 pounds per hour and 22.6 tons per year.</p> <p>The carbon monoxide (CO) emissions from each emissions unit shall not exceed 3.90 pounds per hour and 17.1 tons per year.</p> <p>Visible particulate emissions from the stacks serving these emissions units shall not exceed 5 percent opacity as a six-</p>



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		minute average. See b)(2)a. and c)(1) The requirements of this rule also includes compliance with OAC rules 3745-17-07(A), 3745-17-11(B) and 3745-31-05(D).
b.	OAC rule 3745-31-05(D) Synthetic Minor to avoid Title V	See Sections B.2. through B.9. and c)(2).
c.	OAC rule 3745-17-07(A)	The visible emissions limitation established according to this rule is less stringent than the emissions limitation established according to this rule.
d.	OAC rule 3745-17-11(B)(5)	The particulate emissions from this emissions unit shall not exceed 0.062 pound per million Btu of actual heat input.

(2) Additional Terms and Conditions

a. The hourly NO_x, SO₂ and CO emissions limitations were developed to reflect the potential to emit for each emissions unit, therefore, it is not necessary to develop monitoring or record keeping for these limitations.

c) Operational Restrictions

- (1) The permittee shall burn only natural gas or digester gas in these emissions units.
- (2) The combined volume of natural gas (including pipeline quality natural gas from the PSA system) burned in all cogeneration engines (emissions units B007, B008 and B009) shall not exceed 75.2 million cubic feet as a rolling 12 month total.

d) Monitoring and/or Recordkeeping Requirements

- (1) For each day during which the permittee burns a fuel other than natural gas or digester gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (2) The permittee shall collect and record the following information each day for each emissions unit:
 - a. The volume, in cubic feet, of natural gas (including pipeline quality natural gas from the PSA system) burned in each emissions unit;
 - b. The volume, in cubic feet, of digester gas burned in each emissions unit;

(3) The permittee shall collect and record the following information each month as a sum of the daily records from d)(2), for the purpose of determining rolling 12-month emissions rates as required in compliance with the synthetic minor restrictions of OAC rule 3745-31-05(D):

- a. The volume, in cubic feet, of:
 - i. Natural gas burned in each emissions unit;
 - ii. The combined volume, in cubic feet, of natural gas (including pipeline quality natural gas from the PSA system) burned in emissions units B007, B008 and B009 (the sum off all the volumes for all three emissions units);
 - iii. Digester gas burned in each emissions unit; and
 - iv. The combined volume, in cubic feet, of digester gas burned in emissions units B007, B008 and B009 (the sum off all the volumes for all three emissions units);

As a sum of the daily records from d)(2) for each month.

- b. The NO_x emissions, in pounds or tons:
 - i. The NO_x emissions from natural gas combustion (the volume of natural gas from d)(3)a.ii. multiplied by the heat value of natural gas (0.001020 MMBtu/cubic foot) and 0.847 pound NO_x/MMBtu (U.S. EPA, AP-42, Table 3.2-2, (7/00);
 - ii. The NO_x emissions from digester gas combustion (the volume of digester gas from d)(3)a.iii. multiplied by the digester gas daily heat value calculation from B.8.a) (heat value in MMBtu/cubic foot) and 0.847 pound NO_x/MMBtu (U.S. EPA, AP-42, Table 3.2-2, (7/00); and

- iii. The sum of i. + ii.

- c. The CO emissions, in pounds or tons:
 - i. The CO emissions from natural gas combustion (the volume of natural gas from d)(3)a.ii. multiplied by the heat value of natural gas (0.001020 MMBtu/cubic foot) and 0.557 pound CO/MMBtu (U.S. EPA, AP-42, Table 3.2-2, (7/00);
 - ii. The CO emissions from digester gas combustion (the volume of digester gas from d)(3)a.iii. multiplied by the digester gas daily heat value calculation from B.8.a) (heat value in MMBtu/cubic foot) and 0.557 pound CO/MMBtu (U.S. EPA, AP-42, Table 3.2-2, (7/00); and

- iii. The sum of i. + ii.

- d. The SO₂ emissions, in pounds or tons:

- d. the magnitude and duration of each deviation (excursion).

If no deviations (excursions) occurred during a calendar quarter, the permittee shall submit a report that states that no deviations (excursions) occurred during the quarter.

The quarterly reports shall be submitted, electronically through Ohio EPA Air Services, each year by January 31 (covering October to December), April 30 (covering January to March), July 31 (covering April to June), and October 31 (covering July to September), unless an alternative schedule has been established and approved by the Director (the appropriate District Office or local air agency).

- (3) The permittee shall submit annual reports that summarize the annual:
 - a. Natural gas usage volume, in million cubic feet, for each emissions unit;
 - b. Digester gas usage volume, in million cubic feet, for each emissions unit;
 - c. The NO_x emissions, in tons, for each emissions unit;
 - d. The CO emissions, in tons, for each emissions unit; and
 - e. The SO₂ emissions, in tons, for each emissions unit.

The reports shall be submitted by April 15 of each year. This reporting requirement may be satisfied by including and identifying the data for each emissions unit in the annual Synthetic Minor Title V Fee Emission Report.

- (4) 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 PER shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.
- (5) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements for visible emissions in term number d)(3) above:
 - a. All days during which any visible particulate emissions were observed from the stack serving this emissions unit;
 - b. Any corrective actions taken to eliminate the visible particulate emissions; and
 - c. Any deviation from the requirements of 40 CFR Part 63, Subpart ZZZZ.

All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA

fulfills the requirement to submit the required information to the Director, the District Office or Local Air Agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

f) Testing Requirements

(1) Compliance with the Emissions Limitations specified in b)(1) shall be determined in accordance with the following methods:

a. Emissions Limitation -

The NO_x emissions from each emissions unit shall not exceed 5.93 pounds per hour and 26.0 tons per year.

Applicable Compliance Method -

The 5.93 pounds per hour emissions limitation was developed by multiplying the nominal heat input rate of each engine (7 MMBtu/hour) and the emission factor of 0.847 pound NO_x/MMBtu (U.S. EPA, AP-42, Table 3.2-2, (7/00).

The 26.0 tons per year NO_x emissions limitation was developed by multiplying the 5.93 pounds per hour NO_x emissions limitation by 8,760 hours per year and divided by 2,000 pounds per ton.

If requested, compliance with the hourly NO_x emissions limitations will be demonstrated according to stack testing completed in accordance with U.S. EPA Reference Method 7E of 40 CFR Part 60, Appendix A.

b. Emissions Limitation -

The SO₂ emissions from each emissions unit shall not exceed 5.15 pounds per hour 22.6 tons per year.

Applicable Compliance Method -

The hourly SO₂ emissions limitation was developed according to the calculations of OAC rule 3745-18-04(F)(3) and the hydrogen sulfide concentration of the digester gas.

The 22.6 tons per year emissions limitation was developed by multiplying the 5.15 pounds per hour SO₂ emissions limitation by 8,760 hours per year and divided by 2,000 pounds per ton.

The SO₂ emission factor (EF), was determined according to OAC rule 3745-18-04(F)(3):

$$EF \text{ (lbs/mmBtu)} = 1,000,000 / H \times D \times S \times 1.998$$



Where:

H = heat content of the fuel (620 Btu/cubic foot for digester gas);

D = density of the fuel (0.074 pound/cubic foot for digester gas);

S = decimal fraction of sulfur (0.0013 for digester gas = 1,300 ppmw); and

1.998 conversion factor, no units.

EF = 0.310 pounds/million Btu

If requested, compliance with the hourly SO₂ emissions limitations will be demonstrated according to stack testing completed in accordance with U.S. EPA Reference Method 6 of 40 CFR Part 60, Appendix A.

c. Emissions Limitation -

The NO_x emissions from each emissions unit shall not exceed 3.90 pounds per hour and 17.1 tons per year.

Applicable Compliance Method –

The 3.90 pounds per hour emissions limitation was developed by multiplying the nominal heat input rate of each engine (7 MMBtu/hour) and the emission factor of 0.557 pound NO_x/MMBtu (U.S. EPA, AP-42, Table 3.2-2, (7/00).

The 17.1 tons per year NO_x emissions limitation was developed by multiplying the 3.90 pounds per hour NO_x emissions limitation by 8,760 hours per year and divided by 2,000 pounds per ton.

If requested, compliance with the hourly NO_x emissions limitations will be demonstrated according to stack testing completed in accordance with U.S. EPA Reference Method 10 of 40 CFR Part 60, Appendix A.

d. Emissions Limitation -

The particulate emissions from this emissions unit shall not exceed 0.062 pound per million Btu of actual heat input.

Applicable Compliance Method –

If requested, compliance with the particulate emissions limitation will be demonstrated according to stack testing completed in accordance with U.S. EPA Reference Method 5 of 40 CFR Part 60, Appendix A. .

e. Emissions Limitations –

Visible particulate emissions from the stacks serving these emissions units shall not exceed 5 percent opacity as a six-minute average.



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Applicable Compliance Method –

If requested, compliance with the visible emissions limitation will be demonstrated according to stack testing completed in accordance with OAC rule 3745-17-03(B)(1) and U.S. EPA Reference Method 5 of 40 CFR Part 60, Appendix A.

g) Miscellaneous Requirements

- (1) None.

3. Emissions Unit Group -Gas fired hot water boilers: B010,B011,B012,

EU ID	Operations, Property and/or Equipment Description
B010	14.645 MMBtu/hour digester gas, natural gas or pipeline quality gas fired hot water boiler
B011	14.645 MMBtu/hour digester gas, natural gas or pipeline quality gas fired hot water boiler
B012	14.645 MMBtu/hour digester gas, natural gas or pipeline quality gas fired hot water 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. b)(1)b.

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) PTI 08-04195 issued March 8, 2001	The nitrogen oxides (NOx) emissions from each emissions unit shall not exceed 2.36 pounds per hour and 10.3 tons per year. The carbon monoxide (CO) emissions from each emissions unit shall not exceed 1.98 pounds per hour and 8.67 tons per year. The sulfur dioxide (SO2) emissions from each emissions unit shall not exceed 4.57 pounds per hour and 20.0 tons per year. See b)(2)a. The particulate emissions from each



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		emissions unit shall not exceed 1.28 tons per year. Visible particulate emissions from the stacks serving these emissions units shall not exceed 5 percent opacity as a six-minute average. Compliance with this rule also includes compliance with OAC rules 3745-17-07 and 3745-17-10.
b.	OAC rule 3745-31-05(D) Synthetic minor to avoid Title V	See Sections B.2. through B.9.
c.	OAC rule 3745-17-10(B)(1)	The particulate emissions from each emissions unit shall not exceed 0.020 pound per million Btu of actual heat input.
d.	OAC rule 3745-17-07(A)(1)	The visible emissions limitation established according to this rule is less stringent than the emissions limitation established according to this rule.

(2) Additional Terms and Conditions

a. The hourly NOx, CO and SO2 emissions limitations were established to reflect the potential to emit for each emissions unit, therefore, it is not necessary to develop monitoring or record keeping for these limitations.

c) Operational Restrictions

(1) The permittee shall burn only natural gas or digester gas in these emissions units.

d) Monitoring and/or Recordkeeping Requirements

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

(2) The permittee shall collect and record the following information each day for each emissions unit:

- a. The volume, in cubic feet, of natural gas burned in each emissions unit;
- b. The volume, in cubic feet, of digester gas burned in each emissions unit;

(3) The permittee shall collect and record the following information each month as a sum of the daily records from d)(2), for the purpose of determining rolling 12-month emissions

rates as required in compliance with the synthetic minor restrictions of OAC rule 3745-31-05(D):

- a. The volume, in cubic feet, of:
 - i. Natural gas burned in each emissions unit; and
 - ii. Digester gas burned in each emissions unit;As a sum of the daily records from d)(2) for each month.
- b. The NO_x emissions, in pounds or tons;
 - i. The NO_x emissions from natural gas combustion (the volume of natural gas from d)(2)a.i multiplied by the heat value of natural gas (0.001020 MMBtu/cubic foot) and 0.098 lb NO_x/MMBtu (U.S. EPA, AP-42, Table 1.4-1, (7/98);
 - ii. The NO_x emissions from digester gas combustion (the volume of digester gas from d)(2)a.ii multiplied by the digester gas daily heat value calculation from B.8. (heat value in MMBtu/cubic foot) and 0.161 lb NO_x/MMBtu (U.S. EPA, AP-42, Table 1.4-1, (7/98);
 - iii. The sum of i. + ii.
- c. The CO emissions, in pounds or tons;
 - i. The CO emissions from natural gas combustion (the volume of natural gas from d)(2)a.i multiplied by the heat value of natural gas (0.001020 MMBtu/cubic foot) and 0.082 lb CO/MMBtu (U.S. EPA, AP-42, Table 1.4-1, (7/98);
 - ii. The CO emissions from digester gas combustion (the volume of digester gas from d)(2)a.ii. multiplied by the digester gas daily heat value calculation from B.8. (heat value in MMBtu/cubic foot) and 0.135 lb CO/MMBtu (U.S. EPA, AP-42, Table 1.4-1, (7/98);
 - iii. The sum of i. + ii.
- d. The SO₂ emissions, in pounds or tons
 - i. The SO₂ emissions from natural gas combustion (the volume of natural gas from d)(2)a.i. multiplied by the heat value of natural gas (0.001020 MMBtu/cubic foot) and 0.000588 lb SO₂/MMBtu(U.S. EPA, AP-42, Table 1.4-1, (7/98);
 - ii. The SO₂ emissions from digester gas combustion (the volume of digester gas from d)(2)a.ii multiplied by the digester gas daily heat value calculation from B.8. (heat value in MMBtu/cubic foot) and 0.310 lb SO₂/MMBtu (compliance with OAC rule 3745-18-04(F));

iii. The sum of i. + ii.

(4) The permittee shall perform daily checks, when the emissions unit is in operation 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 emissions incident; and
- e. any corrective actions taken to eliminate the visible emissions.

e) Reporting Requirements

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

(2) The permittee shall submit annual reports that summarize the annual:

- a. The volume of natural gas usage, in million cubic feet, for each emissions unit;
- b. The volume of digester gas usage, in million cubic feet, for each emissions unit;
- c. The NO_x emissions, in tons, for each emissions unit;
- d. The CO emissions, in tons, for each emissions unit; and
- e. The SO₂ emissions, in tons, for each emissions unit.

The reports shall be submitted by April 15 of each year. This reporting requirement may be satisfied by including and identifying the data for each emissions unit in the annual Synthetic Minor Title V Fee Emission Report.

(3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements for visible emissions in term number d)(4) above:

- 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 eliminate the visible particulate emissions.

- (4) 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 PER shall cover a reporting period of no more than twelve months for each air contaminant source identified in this permit.

All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the District Office or Local Air Agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations specified in these terms and conditions shall be determined in accordance with the following methods:

a. Emissions Limitation -

The NO_x emissions from each emissions unit shall not exceed 2.36 pounds per hour 10.3 tons per year.

Applicable Compliance Method –

The 2.36 pounds per hour NO_x emissions limitation was developed by multiplying the maximum heat input capacity of each boiler (14.645 MMBtu/hour) by the digester gas combustion emission factor of 0.161 pound NO_x/MMBtu (U.S. EPA, AP-42, Table 1.4-1, (7/98).

The 10.3 tons per year NO_x emissions limitation was developed by multiplying the 2.36 pounds per hour NO_x emissions limitation by 8,760 hours per year and divided by 2,000 pounds per ton.

If requested, compliance with the hourly NO_x emissions limitations will be demonstrated according to stack testing completed in accordance with U.S. EPA Reference Method 7E of 40 CFR Part 60, Appendix A.

b. Emissions Limitation –

The CO emissions from each emissions unit shall not exceed 1.98 pounds per hour and 8.67 tons per year.

Applicable Compliance Method –

The 1.89 pounds per hour CO emissions limitation was developed by multiplying the maximum heat input capacity of each boiler (14.645 MMBtu/hour) by the digester gas combustion emission factor of 0.135 pound CO/MMBtu (U.S. EPA, AP-42, Table 1.4-1, (7/98).

The 8.67 tons per year NOx emissions limitation was developed by multiplying the 1.89 pounds per hour NOx emissions limitation by 8,760 hours per year and divided by 2,000 pounds per ton.

If requested, compliance with the hourly NOx emissions limitations will be demonstrated according to stack testing completed in accordance with U.S. EPA Reference Method 10 of 40 CFR Part 60, Appendix A.

c. Emissions Limitation -

The SO2 emissions from each emissions unit shall not exceed 4.57 pounds per hour 20.0 tons per year.

Applicable Compliance Method –

The hourly SO2 emissions limitation was developed according to the calculations of OAC rule 3745-18-04(F)(3) and the hydrogen sulfide concentration of the digester gas.

The 20.0 tons per year SO2 emissions limitation was developed by multiplying the 4.57 pounds per hour SO2 emissions limitation by 8,760 hours per year and divided by 2,000 pounds per ton.

The SO2 emission factor (EF), from PTI 08-04195 was determined according to OAC rule 3745-18-04(F)(3):

$$EF \text{ (lbs/mmBtu)} = 1,000,000 / H \times D \times S \times 1.998$$

Where:

H = heat content of the fuel (620 Btu/cubic foot for digester gas);

D = density of the fuel (0.074 pound/cubic foot for digester gas);

S = decimal fraction of sulfur (0.0013 for digester gas = 1,300 ppmw); and

1.998 conversion factor, no units.

$$EF = 0.310 \text{ pounds/million Btu}$$

If requested, compliance with the hourly SO2 emissions limitations will be demonstrated according to stack testing completed in accordance with U.S. EPA Reference Method 6 of 40 CFR Part 60, Appendix A.



d. Emissions Limitation -

The particulate emissions from this emissions unit shall not exceed 0.020 pound per million Btu of actual heat input.

Applicable Compliance Method –

If requested, compliance with the particulate emissions limitation will be demonstrated according to stack testing completed in accordance with U.S. EPA Reference Method 5 of 40 CFR Part 60, Appendix A. .

e. Emissions Limitations –

Visible particulate emissions from the stacks serving these emissions units shall not exceed 5 percent opacity as a six-minute average.

Applicable Compliance Method –

If requested, compliance with the visible emissions limitation will be demonstrated according to stack testing completed in accordance with OAC rule 3745-17-03(B)(1) and U.S. EPA Reference Method 5 of 40 CFR Part 60, Appendix A.

g) Miscellaneous Requirements

- (1) None.

4. Emissions Unit Group -Waste Digester Gas Flares: P002,P003,

EU ID	Operations, Property and/or Equipment Description
P002	Waste Digester Gas Flare Burner #1
P003	Waste Digester Gas Flare Burner #2

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. b)(1)b.

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) PTI 08-1295 issued March 29, 1989	Visible particulate emissions from the stacks serving these emissions units shall not exceed 5 percent opacity as a six-minute average. Compliance with this rule also includes compliance with OAC rules 3745-17-07 and 3745-31-05(D).
b.	OAC rule 3745-31-05(D) Synthetic minor to avoid Title V	See Sections B.2. through B.9.
c.	OAC rule 3745-17-07(A)(1)	The visible emissions limitation established according to this rule is less stringent than the emissions limitation established according to this rule.

- (2) Additional Terms and Conditions
 - a. None.
- c) Operational Restrictions
 - (1) None.
- d) Monitoring and/or Recordkeeping Requirements
 - (1) The permittee shall collect and record the following information each day for these emissions units:
 - a. The volume, in cubic feet, of digester gas burned in each emissions unit;
 - b. The combined volume, in cubic feet, of digester gas burned in both emissions units;
 - (2) The permittee shall collect and record the following information each month as a sum of the daily records from d)(1), for the purpose of determining rolling 12-month emissions rates as required in compliance with the synthetic minor restrictions of OAC rule 3745-31-05(D):
 - a. The volume, in cubic feet, of:
 - i. Digester gas burned in each emissions unit; and
 - ii. The combined volume, in cubic feet, of digester gas burned in both emissions units;
 - As a sum of the daily records from d)(1) for each month.
 - b. The CO emissions, in pounds or tons;
 - i. The CO emissions from digester gas combustion (the volume of digester gas from d)(1)b. multiplied by the digester gas daily heat value calculation from B.8.a) (heat value in MMBtu/cubic foot) and 0.131 pound CO/MMBtu (U.S. EPA, AP-42 Table 13.5-1 (4/15));
 - c. The SO₂ emissions, in pounds or tons
 - i. The SO₂ emissions from digester gas combustion (the volume of digester gas from d)(1)b. multiplied by the digester gas daily heat value calculation from B.8.a) (heat value in MMBtu/cubic foot) and 0.310 pound SO₂/MMBtu;

The SO₂ emission factor (EF), was determined according to OAC rule 3745-18-04(F)(3):

$$EF \text{ (lbs/mmBtu)} = 1,000,000 / H \times D \times S \times 1.998$$

Where:

H = heat content of the fuel (620 Btu/cubic foot for digester gas);

D = density of the fuel (0.074 pound/cubic foot for digester gas);

S = decimal fraction of sulfur (0.0013 for digester gas = 1,300 ppmw); and

1.998 conversion factor, no units.

EF = 0.310 pounds/million Btu

- (3) The permittee shall perform daily checks, when the emissions unit is in operation 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 emissions incident; and
 - e. any corrective actions taken to eliminate the visible emissions.

e) Reporting Requirements

- (1) The permittee shall submit annual reports that summarize the annual:
- a. The volume, in million cubic feet, of digester gas burned in each emissions unit;
 - b. The NO_x emissions, in tons, for each emissions unit;
 - c. The CO emissions, in tons, for each emissions unit; and
 - d. The SO₂ emissions, in tons, for each emissions unit.

The reports shall be submitted by April 15 of each year. This reporting requirement may be satisfied by including and identifying the data for each emissions unit in the annual Synthetic Minor Title V Fee Emission Report.

- (2) 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 PER 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 PER in accordance with the monitoring requirements for visible emissions in term number d)(2) above:
- 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 eliminate the visible particulate emissions.

All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications, or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the District Office or Local Air Agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the required application, notification or report is considered to be "submitted" on the date the submission is successful using a valid electronic signature. Signature by the signatory authority may be represented as provided through procedures established in Air Services.

f) Testing Requirements

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

- a. Emissions Limitations –

Visible particulate emissions from the stacks serving these emissions units shall not exceed 5 percent opacity as a six-minute average.

Applicable Compliance Method –

If requested, compliance with the visible emissions limitation will be demonstrated according to stack testing completed in accordance with OAC rule 3745-17-03(B)(1) and U.S. EPA Reference Method 5 of 40 CFR Part 60, Appendix A.

g) Miscellaneous Requirements

- (1) None.