

GENERAL PERMIT 13.2 TEMPLATE
DIGESTER GAS-FIRED BOILER WITH A HEAT INPUT RATING UP TO 9.9 MMBTU/HR

B. Facility-Wide Terms and Conditions

Note: The following are the terms and conditions for a General PTIO to be issued to a non-Title V facility

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.

C. Emissions Unit Terms and Conditions

1. [Emissions Unit ID], [Company Equipment ID]

9.9 mmBtu/hr or less digester gas and natural gas-fired boiler

Operations, Property and/or Equipment Description:

Natural gas and digester 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.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	ORC 3704.03(T)	Emissions of sulfur dioxide (SO ₂) shall not exceed 0.33 pounds per million Btu (lb/mmBtu). See c)(1) and c)(2).
b.	OAC rule 3745-31-05(A)(3), as effective 11/30/2001	Emissions of nitrogen oxides (NO _x) shall not exceed 0.42 pounds per hour and 1.71 tons per year when firing digester gas. See b)(2)a and b)(2)c.
c.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 12/1/2006	See b)(2)b.
d.	OAC rule 3745-17-07(B)(1)	Visible particulate emissions shall not exceed 20% opacity as a six-minute average, except as provided by rule.
e.	OAC rule 3745-17-10(B)(1)	Emissions shall not exceed 0.020 pound particulate emissions per million BTU actual heat input.

(2) Additional Terms and Conditions

- b. 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.

- c. 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 NO_x emissions from this air contaminant source since the uncontrolled potential to emit is less than 10 tons per year.

- d. The pounds per hour and ton per year emissions limitations for NO_x 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.

c) Operational Restrictions

- (1) The permittee shall burn only 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 1000 parts per million on a volume basis (ppm_v) of hydrogen sulfide.

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 monitor and record hydrogen sulfide concentrations when operating the emissions unit with digester gas using one of the two following options:

Option 1: Weekly gas detector tube sampling. The accuracy of gas detector tubes is presumed to be ± 10%, unless the permittee is able to demonstrate better accuracy of

the detector tubes compared to a certified gas standard. The permittee shall perform gas detector tube monitoring in accordance with the manufacturer's instructions for use of the detector tubes and associated sampling system. Any deviations from the manufacturer's instructions should be recorded with the concentration results of the sampling.

Option 2: Continuous digester gas monitoring system. The permittee may install a sampling and analysis system to continuously monitor and record the 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 5 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 the lower limit of the accuracy of the monitoring system as measured by either of the above monitoring options, the permittee shall promptly investigate the cause of the deviation. The permittee shall maintain records of the following information for each investigation:

- a. the date and time the deviation began;
- b. the magnitude of the deviation at that time;
- c. the date the investigation was conducted;
- d. the name(s) of the personnel who conducted the investigation; and
- e. the findings and recommendations.

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

- f. a description of the corrective action;
- g. the date the corrective action was completed;
- h. the date and time the deviation ended;
- i. the total period of time (in minutes) during which there was a deviation;
- j. hydrogen sulfide readings immediately after the corrective action was implemented; and
- k. the name(s) of the personnel who performed the work.

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

- (3) The permittee shall maintain monthly records of the heat content of the digester gas, in Btu / scf.
- (4) The permittee shall maintain monthly records of the natural gas and digester gas fuel usage in this unit in millions of standard cubic feet.

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) and d)(3):
 - a. all periods of time during which the permittee burns a fuel other than natural gas or digester gas in this emissions unit and the type and quantity of fuel burned;
 - 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.

f) Testing Requirements

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

a. Emissions limitation:

Emissions of nitrogen oxides (NO_x) shall not exceed 0.42 pounds per hour and 1.71 tons per year when firing digester gas.

Applicable compliance method:

Compliance with the allowable mass emission rate for nitrogen oxides (NO_x) may be determined by multiplying the gross output of the boiler in mmBtu/hr by 1/average heat content of digester gas in Btu/scf (from d)(3)) and multiplying by an emission factor of 33 lbs / MM dscf methane and a methane/digester gas ratio of 65%. This emission factor is specified in USEPA reference document AP-42,

Fifth Edition, Compilation of Air Pollution Emission Factors, Section 2.4 Table 2.4-5 (11/98).

Compliance with the annual limitations shall be assumed as long as compliance with the hourly limitations is maintained (each annual limitation was calculated by multiplying the hourly limitation by 8760, and then dividing by 2000).

If required, the permittee shall demonstrate compliance with applicable emission limitations through emission testing performed in accordance with 40 CFR Part 60, Appendix A, Methods 1-4 and:

For NO_x, 40 CFR Part 60, Appendix A Method 7 or 7E

b. Emissions limitation:

Emissions of sulfur dioxide (SO₂) shall not exceed 0.33 pounds per million Btu heat input.

Applicable compliance method:

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

$$E = (10^6 \text{ Btu} / 1 \text{ mmBtu}) * (1 / \text{digester gas heat content}) * (\text{H}_2\text{S ppm}_v / 1,000,000) * 0.088 \text{ lb H}_2\text{S/ft}^3 \text{ H}_2\text{S} * 1.88 \text{ lb SO}_2/\text{lb H}_2\text{S} = \text{SO}_2 \text{ lb/mmBtu}$$

Where:

E = SO₂ emissions rate, lb/mmBtu

Digester gas heat content = average heat content of digester gas in Btu/scf from d)(3).

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

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

c. Emissions limitation:

Visible particulate emissions shall not exceed 20% opacity as a six-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 U.S. EPA Method 9.

d. Emissions limitation:

Emissions shall not exceed 0.020 pound particulate emissions per million BTU actual heat input.

Applicable compliance method:

If required, compliance with the particulate emissions limitation shall be determined through visible emissions performed in accordance with U.S. EPA Method 5.

- g) Miscellaneous Requirements
 - (1) None.