

GENERAL PERMIT 13.3 TEMPLATE
A STATIONARY SPARK IGNITION INTERNAL COMBUSTION ENGINE (SI ICE)
GREATER THAN 1,040 HP AND LESS THAN 2,800 HP (GROSS OUTPUT)

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.
2. The emissions unit contained in this permit is subject to 40 CFR Part 60, Subpart JJJJ. The complete NSPS requirements, including the NSPS General Provisions may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website <http://ecfr.gpoaccess.gov> or by contacting the Ohio EPA District Office or Local Air Agency.
3. The Ohio EPA has determined that this facility may be applicable to the requirements of an area source MACT/GACT rule that the Ohio EPA does not have the delegated authority to implement. Although Ohio EPA has determined that an area source MACT (also known as the GACT) may apply, at this time Ohio EPA does not have the authority to enforce this standard. Instead, U.S. EPA has the authority to enforce this standard. Please be advised that all requirements associated with these rules are in effect and are enforceable by U.S. EPA. For more information on the area source rules, please refer to the follow U.S. EPA website: <http://www.epa.gov/ttn/atw/area/arearules.html>

The area source rule that applies is 40 CFR Part 63, Subpart ZZZZ.

C. Emissions Unit Terms and Conditions

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

Operations, Property and/or Equipment Description:

Digester gas SI ICE greater than 1040 hp and less than 2,800 hp (gross output) with a maximum heat input of 16.9 mmBtu/hour

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

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

(a) d)(2).

(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 operations(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.	Ohio Revised Code (ORC) 3704.03(T)	<p>Emissions of nitrogen oxides (NO_x) shall not exceed 1.0 gram per horsepower-hour (g/hp-hr) while burning digester gas or natural gas.</p> <p>Emissions of carbon monoxide (CO) shall not exceed 3.0 g/hp-hr while burning digester gas.</p> <p>Emissions of carbon monoxide (CO) shall not exceed 2.0 g/hp-hr while burning natural gas.</p> <p>Emissions of volatile organic compounds (VOC) shall not exceed 1.0 g/hp-hr while burning digester gas.</p> <p>Emissions of volatile organic compounds (VOC) shall not exceed 0.7 g/hp-hr while burning natural gas in an engine greater than or equal to 1480 hp.</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>Emissions of sulfur dioxide shall not exceed 0.33 pounds per million Btu (lb/mmBtu).</p> <p>See c)(1), c)(2) and c)(3).</p>
b.	OAC rule 3745-110-03(F)(2)	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to ORC 3704.03(T).
c.	OAC rule 3745-31-05(A)(3), as effective 11/30/2001	<p>Emissions of volatile organic compounds (VOC) shall not exceed 0.7 g/hp-hr and 9.9 tons per year while burning natural gas in an engine less than 1480 hp.</p> <p>Particulate emissions* shall not exceed 1.04 pounds per hour and 4.55 tons per year.</p> <p>See b)(2)a.</p>
d.	OAC rule 3745-31-05(A)(3)(a)(ii), as effective 12/1/2006	See b)(2)b.
e.	OAC rule 3745-18-06(G)	The emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to ORC 3704.03(T).
f.	OAC rule 3745-17-11(B)(5)(b)	Particulate emissions shall not exceed 0.062 pound/million Btu actual heat input.
g.	OAC rule 3745-17-07(A)(1)	Visible PE from any stack serving this emissions unit shall not exceed 20% opacity as a 6-minute average, except as provided by the rule.
h.	<p>40 CFR Part 60, Subpart JJJJ</p> <p>[In accordance with 40 CFR 60.4230(a)(4)(i), this emissions unit is a spark ignition engine greater than or equal to 500 horsepower (HP)]</p>	<p>The NOx emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to ORC 3704.03(T) while burning digester gas and equivalent to the emissions limit established pursuant to ORC 3704.03(T) while burning natural gas.</p> <p>The CO emissions limitation specified by this rule is less stringent than the emissions limitation established pursuant to ORC rule 3704.03(T)) while burning digester gas and equivalent to the emissions limit established pursuant to ORC 3704.03(T) while burning natural gas..</p>

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		<p>The VOC emissions limitation specified by this rule is equivalent to the emissions limitation established pursuant to ORC 3704.03(T) and OAC rule 3745-31-05(A)(3).</p> <p>See b)(2)c and b)(2)d.</p>
i.	40 CFR 60.1 – 19 (40 CFR 60.4246)	Table 3 to Subpart JJJJ of 40 CFR Part 60 – Applicability of Subpart A to Subpart JJJJ shows which parts of the General Provisions in 40 CFR 60.1-19 apply.

*Particulate emissions consists of particulate emissions with an aerodynamic diameter of less than 10 µm (PM10), particulate emissions with an aerodynamic diameter of less than 2.5 µm (PM2.5) and particulate matter (PM).

(2) Additional Terms and Conditions

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

- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

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

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

- c. The spark ignition (SI) internal combustion engine is subject to and shall be operated in compliance with the requirements of 40 CFR Part 60, Subpart JJJJ, the standards of performance for stationary spark ignition, internal combustion engines. The engine shall be certified by the manufacturer to meet the applicable limits of 40 CFR 60.4231.

If the engine was not certified at the factory, the emission standard for the “owner/operator” should be referenced as from 60.4233(e).

- d. The permittee shall comply with the applicable requirements under 40 CFR Part 60, Subpart JJJJ, including the following sections.

60.4233(e)	Emission standards
60.4243(b)	Demonstrate compliance

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.
- (3) The height of the stack on this emissions unit shall be at least 18 feet, measured from the ground and 150 feet from the property line.
- (4) The permittee shall comply with the applicable restrictions required under 40 CFR Part 60, Subpart JJJJ, including the following sections:

60.4243	Emissions controls – three-way catalyst and air-fuel ratio controllers
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d) **Monitoring and/or Recordkeeping Requirements**

- (1) The permittee shall perform daily checks, when the emissions unit is in operation firing digester gas and when the weather conditions allow, for any visible particulate emissions from the stack serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. whether the emissions are representative of normal operations;
 - c. if the emissions are not representative of normal operations, the cause of the abnormal emissions;
 - d. the total duration of any visible emission incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

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

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

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

- (2) For each day during which the permittee burns a fuel other than natural gas and/or digester gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
- (3) The permittee shall maintain monthly records of the natural gas and digester gas fuel usage in this unit in millions of standard cubic feet.
- (4) The permittee shall comply with the applicable monitoring and record keeping requirements under 40 CFR Part 60, Subpart JJJJ, including the following sections.

60.4243(e)	Emergency operations, special record keeping
60.4245(a)	Record keeping requirements

- (5) Modeling to demonstrate compliance with, the "Toxic Air Contaminant Statute", ORC 3704.03(F)(4)(b), was not necessary because the emissions unit's maximum annual emissions for each toxic air contaminant, as defined in OAC rule 3745-114-01, will be less than 1.0 ton per year. OAC Chapter 3745-31 requires permittees to apply for and obtain a new or modified permit to install prior to making a "modification" as defined by OAC rule 3745-31-01. The permittee is hereby advised that changes in the composition of the materials, or use of new materials, that would cause the emissions of any toxic air contaminant to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.
- (6) The permittee shall monitor and record hydrogen sulfide concentrations when operating the emissions unit with digester gas using one of the two following options:

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

Option 2: Continuous digester gas monitoring system. The permittee may install a sampling and analysis system to continuously monitor and record the 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.

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

e) Reporting Requirements

- (1) The reports required by this permit may be submitted through the Ohio EPA's eBusiness Center: Air Services online web portal; or they may be mailed as a hard copy to the appropriate district office or local air agency.
- (2) Annual Permit Evaluation Report (PER) forms will be mailed to the permittee at the end of the reporting period specified in the Authorization section of this permit. The permittee shall submit the PER in the form and manner provided by the director by the due date identified in the Authorization section of this permit. The permit evaluation report shall cover a reporting period of no more than twelve-months for each air contaminant source identified in this permit.
- (3) The permittee shall identify the following information in the annual permit evaluation report in accordance with the monitoring requirements in d)(2), d)(6) and d)(7):
 - 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.
- (4) The permittee shall submit reports and such other notifications to the Ohio EPA as are required pursuant to 40 CFR Part 60, Subpart JJJJ, per the following sections:

60.4245(c)	Reporting requirements
60.4245(d)	Reporting requirements

These reports and other such notifications shall be submitted to the Ohio EPA District Office or Local Air Agency.

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:

NO_x emissions shall not exceed 1.0 g/hp-hr.

Applicable Compliance Method:

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

CO emissions shall not exceed 3.0 g/hp-hr while burning digester gas and 2.0 g/hp-hr while burning natural gas.

Applicable Compliance Method:

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

c. Emissions Limitation:

VOC emissions shall not exceed 1.0 g/hp-hr while burning digester gas and 0.7 g/hp-hr and 9.9 tons per year while burning natural gas.

Applicable Compliance Method:

If required, compliance with the VOC emission limitation shall be determined in accordance with U.S. EPA Reference Methods 1-4 and 25 or 25A, as applicable, of 40 CFR Part 60, Appendix A.

d. Emissions Limitation:

Particulate emissions shall not exceed 1.04 pounds per hour and 4.55 tons per year.

Particulate emissions shall not exceed 0.062 pounds per million BTU actual heat input

Applicable Compliance Method:

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

e. Emissions Limitation:

Sulfur dioxide (SO₂) emissions shall not exceed 0.33 lb/mmBtu.

Applicable Compliance Method:

The permittee shall demonstrate compliance with the emissions limitation through the required monitoring and recordkeeping in d)(6) and using the following equation:

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

Where:

E = SO₂ emissions rate, lb/mmBtu

Digester gas heat content = average heat content of digester gas in Btu/scf from d)(7).

H_2S ppm_v = average concentration of H₂S in digester gas, from d)(6).

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.

f. Emissions Limitation:

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

Applicable Compliance Method:

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

g) Miscellaneous Requirements

(1) None.