

Facility ID: 1409090032 Issuance type: Final State Permit To Operate

This version of facility specific terms and conditions was converted from a database format to an HTML file during an upgrade of the Ohio EPA, Division of Air Pollution Control's permitting software. Every attempt has been made to convert the terms and conditions to look and substantively conform to the permit issued or being drafted in STARS. However, the format of the terms may vary slightly from the original. In addition, although it is not expected, there is a slight possibility that a term and condition may have been inadvertently "left out" of this reproduction during the conversion process. Therefore, if this version is to be used as a starting point in drafting a new version of a permit, it is imperative that the entire set of terms and conditions be reviewed to ensure they substantively mimic the issued permit. The official version of any permit issued final by Ohio EPA is kept in the Agency's Legal section. The Legal section may be contacted at (614) 644-3037.

In addition to the terms and conditions, hyperlinks have been inserted into the document so you may more readily access the section of the document you wish to review.

Finally, the term language under "Part II" and before "A. Applicable Emissions Limitations..." has been added to aid in document conversion, and was not part of the original issued permit.

THIS IS NOT AN OFFICIAL VERSION OF THE PERMIT. SEE PAGE 1 FOR ADDITIONAL INFORMATION

Facility ID: 1409090032 Emissions Unit ID: P001 Issuance type: Final State Permit To Operate

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Part II - Special Terms and Conditions

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.

A. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(s), property, and/or equipment which constitute this emissions unit are listed in the following table along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from this unit shall not exceed the listed limitations, and the listed control measures shall be employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P001 - 1850 bhp engine with a 1250 kW emergency and peaking generator	OAC rule 3745-31-05(A)(3) (PTI 14-05021)	Nitrogen oxides (NOx) emissions shall not exceed 25.4 pounds per hour and 12.65 tons per year. Organic compound (OC) emissions shall not exceed 2.5 pounds per hour and 1.3 tons per year. Carbon monoxide (CO) emissions shall not exceed 4.7 pounds per hour and 2.4 tons per year. Sulfur dioxide (SO2) emissions shall not exceed 4.5 pounds per hour and 2.25 tons per year. Particulate emissions (PE) and Particulate matter 10 microns and less in diameter (PM10) shall not exceed 0.185 ton per year (combined non-emergency and emergency operation). See terms and conditions B.1 and B.4. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-07(A)(1) and OAC rule 3745-17-11(B)(5)(b).
	OAC rule 3745-18-06(G)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11(B)(5)(b)	Particulate emissions (PE) shall not exceed 0.062 pound per mmmBtu of actual heat input (during non-emergency operation).
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.

2. Additional Terms and Conditions

- (a) Compliance with OAC rule 3745-31-05(A)(3) shall be demonstrated by compliance with the emission limitations, hours of operation limitations, and the use of 0.3% or less sulfur diesel fuel. The hourly emission limitations for NOx, OC, CO, and SO2 (based on 0.3% sulfur) are based upon the emission unit's potential to emit. Therefore, no hourly records are required to demonstrate compliance with these limits.

B. Operational Restrictions

1. The combined maximum annual operating hours for this emissions unit shall not exceed 1000 hours. This total shall include all periods of operation to meet emergency and non-emergency loads and emissions unit testing. Emergency operation shall be defined as the period of time when the generator is used to supply power to the hospital because electrical power from the electricity distributor is curtailed or disrupted.

2. The permittee shall properly install, operate, and maintain equipment to continuously monitor the generator output (load) for emissions unit P001, in kilowatts, during all periods of operation. The permittee shall correlate the generator outputs (kW) to the percent of engine load (bhp) and fuel burned (gal/hour), and maintain records of supporting information for the correlation.
 3. The operating load of this emissions unit and the quality of the fuel burned in this emissions unit shall have a heat content which is sufficient to comply with the allowable particulate emission limitation of 0.062 pound particulate matter/mmBtu of actual heat input when this emissions unit is operated to meet non-emergency loads.
 4. The quality of the fuel burned in this emissions unit shall have a combination of heat and sulfur content which is sufficient to comply with an allowable sulfur dioxide emission limitation of 0.4 pound sulfur dioxide/mmBtu of actual heat input.
 5. The permittee shall follow the manufacturer's recommendations, NFPA (National Fire Protection Association) recommendations, and good engineering practices in maintaining this diesel electric generator. The permittee shall retain records of any maintenance on this emission unit on site.
- C. Monitoring and/or Record Keeping Requirements**
1. The permittee shall maintain daily records for this emissions unit which include :
 - a. an identification of the number of hours of operation of emissions unit P001;
 - b. an identification of when the emissions unit, P001, was operating to meet non-emergency load or emergency load (monthly testing of this emissions unit shall be included in the emergency load hours);
 - c. an identification of the average daily output of the generator during non-emergency power generation and during all periods of operation, in kilowatts and as a percent of maximum load of the engine;
 - d. the average hourly bhp [the result of (c) divided by (a)] during non-emergency power generation (for use in PE calculations); the average hourly bhp during all periods of operation (for use in CO, OC, and SO₂ calculations); and
 - e. the PE/PM₁₀ emissions rate, in pounds per mmBtu, during non-emergency power generation.
 2. The permittee shall maintain monthly records for this emissions unit that include:
 - a. a monthly volume-weighted average of the heat content of the fuel based on the analyses for each shipment of fuel oil received by the permittee;
 - b. the total hours of operation to meet non-emergency load demands;
 - c. the total hours of operation to meet emergency load demands; and
 - d. the total combined hours of operation [the sum of (b) + (c)].
 3. The permittee shall maintain annual records for this emissions unit that include:
 - a. the total hours of operation to meet non-emergency load demands;
 - b. the total hours of operation to meet emergency load demands;
 - c. the total combined hours of operation [the sum of (a) + (b)];
 - d. the annual NO_x, OC, CO, and SO₂ emissions, in tons per year, based on the combined hours of operation in (c).
 4. For each shipment of oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of oil received, the permittee's or oil supplier's analyses for sulfur content and heat content, and the calculated sulfur dioxide emission rate (in lbs/mmBtu). The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F). A shipment may be comprised of multiple tank truck loads from the same supplier's batch, or may be represented by single or multiple pipeline deliveries from the same supplier's batch, and the quality of the oil for those loads or pipeline deliveries may be represented by a single batch analysis from the supplier.

The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with 40 CFR Part 60, Appendix A, Method 19, or the appropriate ASTM methods, such as D240 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter and D4294, Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry, or equivalent methods as approved by the Director.
- D. Reporting Requirements**
1. The permittee shall submit annual reports which identify any exceedances of the annual operating hours limitation in Section B.1 of these terms and conditions as well as the corrective actions that were taken to achieve compliance. These reports shall be submitted to the Hamilton County Department of Environmental Services by January 31 of each year.
 2. The permittee shall submit deviation (excursion) reports which identify all exceedances of the pound per mmBtu PE limitation specified in Section A.1 of these terms and conditions. This report shall include a copy of the analytical results which contain the actual heat content of the fuel oil and any corrective actions that were taken to achieve compliance. If no exceedances occurred during the reporting period, the permittee shall state so in the report.
 3. The permittee shall notify the Hamilton County Department of Environmental Services in writing of any record which shows a deviation of the allowable sulfur dioxide limitation specified in Section B.4 of these terms and conditions. The notification shall include a copy of such record and shall be sent to the Hamilton County Department of Environmental Services within 45 days after the deviation occurs.

4. The deviation reports shall be submitted in accordance with the reporting requirements of the General Terms and Conditions of this permit.

E. Testing Requirements

1. Compliance with the emission limitations in Section A.1 of these terms and conditions shall be demonstrated in accordance with the following methods:
Emission Limitations:

Nitrogen oxides (NO_x) emissions shall not exceed 25.4 pounds per hour and 12.65 tons per year.

Applicable Compliance Method:

The hourly emissions rate specified above is based upon the emission unit's potential to emit and was calculated using the manufacturer's pollutant-specific emissions factor (EF) from PTI application 14-05021 as supplied by the permittee and the operating load (bhp) of the emissions unit. Compliance with the annual NO_x emissions limitation shall be determined by applying the manufacturer-supplied EF in the following equation:

$gNO_x/bhp-hr (EF) \times \text{average hourly bhp} \times 0.002205 \text{ lbs/g} \times \text{actual annual operating hours} \times \text{ton}/2000 \text{ lbs} = \text{tons per year of NO}_x$

The permittee may use the maximum hourly bhp in lieu of the average hourly bhp in the equations above to simplify compliance calculations, as long as the emissions limitation is not exceeded.

Emission Limitations:

Organic compound (OC) emissions shall not exceed 2.5 pounds per hour and 1.3 tons per year.

Applicable Compliance Method:

The hourly emissions rate specified above is based upon the emission unit's potential to emit and was calculated using the manufacturer's pollutant-specific emissions factor (EF) from PTI application 14-05021 as supplied by the permittee and the operating load (bhp) of the emissions unit. Compliance with the annual OC emissions limitation shall be determined by applying the manufacturer-supplied EF in the following equation:

$gOC/bhp-hr (EF) \times \text{average hourly bhp} \times 0.002205 \text{ lbs/g} \times \text{actual annual operating hours} \times \text{ton}/2000 \text{ lbs} = \text{tons per year of OC}$

The permittee may use the maximum hourly bhp in lieu of the average hourly bhp in the equations above to simplify compliance calculations, as long as the emissions limitation is not exceeded.

Emission Limitations:

Carbon monoxide (CO) emissions shall not exceed 4.7 pounds per hour and 2.4 tons per year.

Applicable Compliance Method:

The hourly emissions rate specified above is based upon the emission unit's potential to emit and was calculated using the manufacturer's pollutant-specific emissions factor (EF) from PTI application 14-05021 as supplied by the permittee and the operating load (bhp) of the emissions unit. Compliance with the annual CO emissions limitation shall be determined by applying the manufacturer-supplied EF in the following equation:

$gCO/bhp-hr (EF) \times \text{average hourly bhp} \times 0.002205 \text{ lbs/g} \times \text{actual annual operating hours} \times \text{ton}/2000 \text{ lbs} = \text{tons per year of CO}$

The permittee may use the maximum hourly bhp in lieu of the average hourly bhp in the equations above to simplify compliance calculations, as long as the emissions limitation is not exceeded.

Emission Limitations:

Sulfur dioxide (SO₂) emissions shall not exceed 4.5 pounds per hour (0.4 pound per mmBtu) and 2.25 tons per year.

Applicable Compliance Method:

The hourly emissions rate specified above was based upon the emission unit's potential to emit and was calculated using a maximum fuel oil sulfur content of 0.3% by weight. Compliance with the corresponding sulfur dioxide limit of 0.4 lb SO₂/mmBtu shall be determined by the methods specified in OAC rule 3745-18-04(F)(2) and fuel analyses required in Section C.4 of these terms and conditions.

Compliance with the SO₂ emissions limitations shall be demonstrated by applying the emission factors (EF) from US EPA AP-42, Section 3.4, Table 3.4-1 (rev. 10/1996), in the following equations, where s = % sulfur in fuel oil (for example, if sulfur content is 0.3%, then s = 0.3):

a. $[1,000,000 \text{ Btu/mmBtu} / \text{fuel heat content (Btu/gallon)}] \times \text{density of the fuel (lb/gal)} \times (s/100) \times 1.974 = \text{pound SO}_2/\text{mmBtu}$

b. $0.008 \text{ lb/bhp-hr (s)} \times \text{average hourly bhp} = \text{actual lbs SO}_2/\text{hr}$, where (s) is based on the maximum sulfur content of the fuel during the calendar year.

c. $\text{actual lbs SO}_2/\text{hr} \times \text{actual annual operating hours (hours/year)} \times \text{ton}/2000 \text{ lbs} = \text{tons per year SO}_2$.

The permittee may use the maximum hourly bhp in lieu of the average hourly bhp in the equations above to simplify compliance calculations, as long as the emissions limitation is not exceeded.

Emissions Limitation:

Particulate emissions (PE) shall not exceed 0.062 pound per mmBtu of actual heat input (during non-emergency operation).

Applicable Compliance Method:

Compliance with the 0.062 pound PE per mmBtu emissions limitation shall be demonstrated, for non-emergency load operation, by applying the following equations using the manufacturer-supplied EF in PTI application 14-05021, where fuel use in gallons per hour is based on engine load:

- a. $\text{gallons/hour} \times \text{mmBtu/gallon} = \text{mmBtu/hour of actual heat input};$
- b. $\text{gPE/bhp-hr (EF)} \times \text{average hourly bhp during non-emergency operations} \times 0.002205 \text{ lb/g} = \text{lb PE/hour};$
- c. $\text{lb PE/hour} / \text{mmBtu/hour} = \text{lb PE per mmBtu};$

where mmBtu/gallon is the monthly average of the fuel heat content from the record keeping requirements in Section C.2 of these terms and conditions.

Emissions Limitation:

Particulate emissions (PE) and Particulate matter 10 microns and less in diameter (PM10) shall not exceed 0.185 tons per year (combined non-emergency and emergency operation).

Applicable Compliance Method:

Compliance with the particulate limit of 0.185 tons per year PE/PM10 for combined emergency and non-emergency power generation is based on a 'worst case' situation of 1000 hours of operation at the manufacturer-supplied maximum emissions rate of 0.37 lb PE/hour and the maximum operating rate of 1850 bhp as provided by the permittee in PTI application 14-05021. No records are required unless the 1000 hours of operation is exceeded.

Emissions Limitation:

Visible particulate emissions from any stack shall not exceed 20 percent opacity, as a six-minute average, except as specified by rule.

Applicable Compliance Method:

Upon request, compliance shall be determined through visible emission observations performed in accordance U.S. EPA Method 9.

F. Miscellaneous Requirements

1. Based on the engine information supplied by the permittee in PTI application 14-05021 for the maximum fuel use per hour and the heat content of the diesel fuel, the minimum required operating load for emissions unit P001 during periods of operation to meet non-emergency loads is greater than, or equal to, 38.1% of the maximum rated output load for the engine, or 705 bhp. The permittee has elected to monitor the generator output rather than the engine load. A correlation between the output of the generator in kW and the engine output in bhp-hr shall be established by the permittee, submitted to this agency for review, and shall kept on file at the permittee's facility for review.
2. Modeling to demonstrate compliance with the Ohio EPA's "Air Toxic Policy" was not necessary because the emissions unit's maximum annual emissions for each toxic compound will be less than 1.0 ton. 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 pollutant that has a listed TLV to increase to above 1.0 ton per year may require the permittee to apply for and obtain a new permit to install.