

Emissions Unit P001

A. Applicable Emission Limitations and/or Control Requirements

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

B. Operational Restrictions

2. The maximum annual operating hours for this emissions unit shall not exceed 5900 hours, based upon a rolling, 12-month summation of the operating hours.

To ensure enforceability during the first 12 calendar months of operation following issuance of this permit, the permittee shall not exceed the operating hours levels specified in the following table:

<u>Month(s)</u>	<u>Maximum Allowable Cumulative Operating Hours</u>
1	744
1-2	1488
1-3	2232
1-4	2976
1-5	3720
1-6	4460
1-7	5204
1-8	5900
1-9	5900
1-10	5900
1-11	5900
1-12	5900

After the first 12 calendar months of operation following issuance of this permit, compliance with the annual operating hours limitation shall be based upon a rolling, 12-month summation of the operating hours.

C. Monitoring and Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information:

a. The operating hours for each month.

b. Beginning after the first 12 calendar months of operation following issuance of this permit, the rolling, 12-month summation of the operating hours.

Also, during the first 12 calendar months of operation, the permittee shall record the cumulative operating hours for each calendar month.

D. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports which identify all exceedances of the rolling, 12-month operating hours limitation and, for the first 12 calendar months of operation, all exceedances of the maximum allowable cumulative operating hours levels.

2. The permittee shall also submit annual reports which specify the total NO_x and CO emissions from this emissions unit for the previous calendar year. These reports shall be submitted by January 31 of each year.

3. The permittee shall submit required reports in the following manner:

a. Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.

b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and

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recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter.

The reports shall be submitted quarterly, i.e. by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

E. Compliance Methods/Testing Requirements

1. Compliance with the Visible Emissions limitation shall be determined in accordance with 40 CFR 60 Appendix A, Method 9.

2. Compliance with the PM allowable emissions rate shall be determined using emission factors supplied by the vendor, or if testing is required, by 40 CFR 60 Appendix A, Method 5, or appropriate variants.

3. Compliance with the NO_x allowable emissions rate shall be determined using emission factors supplied by the vendor, or if testing is required, by 40 CFR 60 Appendix A, Method 7, or appropriate variants. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

4. Compliance with the CO allowable emissions rate shall be determined using emission factors supplied by the vendor, or if testing is required, by 40 CFR 60 Appendix A, Method 10, or appropriate variants. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

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5. Compliance with the VOC allowable emissions rate shall be determined using emission factors supplied by the vendor, or if testing is required, by 40 CFR 60 Appendix A, Method 25, or appropriate variants. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

F. Miscellaneous Requirements

1. The hourly and/or daily emission limitation(s) outlined in this permit are based upon the maximum hourly production/application rate at 24 hours per day. Therefore, no hourly and/or daily records are required.

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Emissions Unit P002

A. Applicable Emission Limitations and/or Control Requirements

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

B.Operational Restrictions

1.The maximum annual operating hours for this emissions unit shall not exceed 5900 hours, based upon a rolling, 12-month summation of the operating hours.

To ensure enforceability during the first 12 calendar months of operation following issuance of this permit, the permittee shall not exceed the operating hours levels specified in the following table:

<u>Month(s)</u>	<u>Maximum Allowable Cumulative Operating Hours</u>
1	744
1-2	1488
1-3	2232
1-4	2976
1-5	3720
1-6	4460
1-7	5204
1-8	5900
1-9	5900
1-10	5900
1-11	5900
1-12	5900

After the first 12 calendar months of operation following issuance of this permit , compliance with the annual operating hours limitation shall be based upon a rolling, 12-month summation of the operating hours.

C.Monitoring and Recordkeeping Requirements

1.The permittee shall maintain monthly records of the following information:

a.The operating hours for each month.

b.Beginning after the first 12 calendar months of operation following issuance of this permit, the rolling, 12-month summation of the operating hours.

Also, during the first 12 calendar months of operation following issuance of this permit, the permittee shall record the cumulative operating hours for each calendar month.

D.Reporting Requirements

1.The permittee shall submit deviation (excursion) reports which identify all exceedances of the rolling, 12-month operating hours limitation and, for the first 12 calendar months of operation, all exceedances of the maximum allowable cumulative operating hours levels.

2.The permittee shall also submit annual reports which specify the total NO_x and CO emissions from this emissions unit for the previous calendar year. These reports shall be submitted by January 31 of each year.

3.The permittee shall submit required reports in the following manner:

a.Reports of any required monitoring and/or recordkeeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.

b.Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and

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recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter.

The reports shall be submitted quarterly, i.e. by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

E.Compliance Methods/Testing Requirements

1. Compliance with the Visible Emissions limitation shall be determined in accordance with 40 CFR 60 Appendix A, Method 9.

2. Compliance with the PM allowable emissions rate shall be determined using emission factors supplied by the vendor, or if testing is required, by 40 CFR 60 Appendix A, Method 5, or appropriate variants.

3. Compliance with the NO_x allowable emissions rate shall be determined using emission factors supplied by the vendor, or if testing is required, by 40 CFR 60 Appendix A, Method 7, or appropriate variants. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

4. Compliance with the CO allowable emissions rate shall be determined using emission factors supplied by the vendor, or if testing is required, by 40 CFR 60 Appendix A, Method 10, or appropriate variants. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

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5. Compliance with the VOC allowable emissions rate shall be determined using emission factors supplied by the vendor, or if testing is required, by 40 CFR 60 Appendix A, Method 25, or appropriate variants. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

F. Miscellaneous Requirements

1. The hourly and/or daily emission limitation(s) outlined in this permit are based upon the maximum hourly production/application rate at 24 hours per day. Therefore, no hourly and/or daily records are required.

PERMIT REVIEW NARRATIVE

PTI 14-4484

University of Cincinnati
3150 Eden Avenue
Cincinnati, Ohio 45221

Premise Number: 1431070849

University of Cincinnati plans to install two new chillers driven by natural gas engines. The engines are 16 cylinder, 4-cycle, small bore internal combustion engines fueled by natural gas. The engines use lean-burn combustion controls to boost efficiency and minimize NOx and CO emissions. The two units, if operated at 8760 hours per year, would exceed 40 tons of NOx; as UC is already a Major facility, this emission level would subject the facility to NSR and Emissions Offset policy. By limiting hours of operation to 5900 hours per year per unit, and ensuring federal enforceability, NSR is avoided.

At this agency's request, a more detailed BAT analysis was prepared comparing the cost/benefits of a rich burn/selective catalytic reduction compared to the proposed

lean burn controller. Relative costs were \$46.80/ ton NOx removed for lean burn vs. \$1172/ ton for SCR. However, the difference between the emissions of the two methods is only 9.5 TPY. As previous PTI's list BAT as lean-burn, this was the option selected.

Applicable OAC rules are:

3745-15-07 prohibits air pollution nuisances
3745-17-07 requires control of visible emissions
3745-17-11 limits particulate emissions to 0.25 lb/MMBTU
3745-31-05BAT requirement

Approval of a PTI for these emissions units is recommended. The permit must be issued in draft form to be federally enforceable.

Permit Fee:	P001	\$200.00 (based on MPWR, due to 3745-17-11 applicability)
	P002	<u>\$200.00</u>
	Total	<u>\$400.00</u>

Prepared by:G. L. Howard

Synthetic Minor Determination

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A. Source Description:

University of Cincinnati (UC) plans to install two new chillers driven by natural gas engines. The engines are 16 cylinder, 4-cycle, small bore internal combustion engines fueled by natural gas. The engines use lean-burn combustion controls to boost efficiency and minimize NOx emissions. The two units, if operated at 8760 hours per year, would exceed 40 tons of NOx; as UC is already a Major facility, this emission level would subject the facility to the Emissions Offset Interpretative Ruling. By limiting hours of operation to 5900 hours per year per unit, and ensuring federal enforceability, NSR is avoided.

B. Facility Location and Attainment Status:

The proposed emissions units will be located in Hamilton County, Ohio. Hamilton County is classified as moderate non-attainment for ozone and NOx for New Source Review purposes. The University of Cincinnati is a Major source for SO2 and NOx.

C. New Source Emissions:

The potential emissions of NOx would be greater than 40 tpy if hours of operation were not limited, and this permit would be subject to NSR and the Emissions Offset Interpretative Ruling. The allowable new NOx emissions for these emissions units will be 13.5 lbs./hr and 39.8 tpy (both units), based on a rolling, 12-month summation. The permittee will maintain monthly records to demonstrate compliance. Hourly emissions are based on the maximum potential emissions.

D. Conclusion:

With this PTI, UC's federally enforceable potential NOx emissions for these emissions units are effectively limited to 39.8 tons per year, thus avoiding NSR and Emissions Offset Interpretative Ruling permitting requirements.

Prepared by: Gregory L. Howard
Date prepared: November 26, 1997