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Facility Name: **Kent State University**

Application Number: **16-1800**

Date: **June 17, 1998**

GENERAL PERMIT CONDITIONS

TERMINATION OF PERMIT TO INSTALL

Substantial construction for installation must take place within 18 months of the effective date of this permit. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

NOTICE OF INSPECTION

The Director of the Ohio Environmental Protection Agency, or his authorized representatives, may enter upon the premises of the above-named applicant during construction and operation at any reasonable time for the purpose of making inspections, conducting tests, or to examine records or reports pertaining to the construction, modification or installation of the source(s) of environmental pollutants identified within this permit.

CONSTRUCTION OF NEW SOURCE(S)

The proposed source(s) shall be constructed in strict accordance with the plans and application submitted for this permit to the Director of the Ohio Environmental Protection Agency. There may be no deviation from the approved plans without the express, written approval of the Agency. Any deviations from the approved plans or the above conditions may lead to such sanctions and penalties as provided under Ohio law. Approval of these plans does not constitute an assurance that the proposed facilities will operate in compliance with all Ohio laws and regulations. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed sources are inadequate or cannot meet applicable standards.

If the construction of the proposed source(s) has already begun or has been completed prior to the date the Director of the Ohio Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of Ohio Administrative Code

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(OAC) Rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities prove to be inadequate or cannot meet applicable standards.

PERMIT TO INSTALL FEE

In accordance with Ohio Revised Code 3745.11, the specified Permit to Install fee must be remitted within 15 days of the effective date of this permit to install.

PUBLIC DISCLOSURE

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC Rule 3745-49-03.

APPLICABILITY

This Permit to Install is applicable only to the contaminant sources identified. Separate application must be made to the Director for the installation or modification of any other contaminant sources.

BEST AVAILABLE TECHNOLOGY

As specified in OAC Rule 3745-31-05, all new sources must employ Best Available Technology (BAT). Compliance with the terms and conditions of this permit will fulfill this requirement.

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PERMIT TO OPERATE APPLICATION

A Permit to Operate application must be submitted to the appropriate field office for each air contaminant source in this Permit to Install. In accordance with OAC Rule 3745-35-02, the application shall be made at least 90 days prior to start-up of the source.

NINETY DAY OPERATING PERIOD

The facility will be permitted to operate during a 90-day period in accordance with OAC Rule 3745-35-02(C)(4)(b). The purpose of this period of operation is to fulfill the performance tests conditions used in the determination of compliance with the provisions of this Permit to Install or other applicable Ohio EPA rules.

SOURCE OPERATION AFTER COMPLETION OF CONSTRUCTION

This facility is permitted to operate each source described by this permit to install for period of up to one year from the date the source commenced operation. This permission to operate is granted only if the facility complies with all requirements contained in this permit and all applicable air pollution laws, regulations, and policies.

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<u>Ohio EPA Source Number</u>	<u>Source Identification Number</u>	<u>BAT Determination</u>	<u>Applicable Federal & OAC Rules</u>	<u>Permit Allowable Mass Emissions and/or Control/Usage Requirements</u>
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AIR EMISSION SUMMARY

The air contaminant emissions units listed below comprise the Permit to Install for **Kent State University** located in **Portage** County. The emissions units listed below shall not exceed the emission limits/control requirements contained in the table. This condition in no way limits the applicability of any other state or federal regulations. Additionally, this condition does not limit the applicability of additional special terms and conditions of this permit.

<u>Ohio EPA Source Number</u>	<u>Source Identification Description</u>	<u>BAT Determination</u>	<u>Applicable Federal & OAC Rules</u>	<u>Permit Allowable Mass Emissions and/or Control/Usage Requirements</u>
B007	121 MMBtu/hour natural gas-fired boiler	Natural gas as fuel. Utilization of low NO _x burner.	3745-31-05	0.055 pound of nitrogen oxides per million Btu heat input.
		See Additional Special Terms and Conditions.	3745-17-07 (A)	20 percent opacity as a six-minute average, except as provided by rule.
			3745-17-10 (B)	0.020 pound of particulates per million Btu actual heat input.
			40 CFR 60.44b	Less stringent than 3745-31-05

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19.4
 pounds/
 hour CO
 and
 72.4
 TPY

SUMMARY
 TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

<u>Pollutant</u>	<u>Tons/Year</u>
Particulates	9.05*
Nitrogen Oxides	24.9*
CO	72.4

* Based on restricted gas use.

NSPS REQUIREMENTS

The following sources are subject to the applicable provisions of the New Source Performance Standards (NSPS) as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60.

<u>Source Number</u>	<u>Source Description</u>	<u>NSPS Regulation (Subpart)</u>
B007	Natural gas-fired boiler	Db

PERFORMANCE TEST REQUIREMENTS

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The permittee shall conduct, or have conducted, performance testing on the air contaminant source(s) in accordance with procedures approved by the Agency. Two copies of the written report describing the test procedures followed and the results of such tests shall be submitted and signed by the person responsible for the test. The Director, or an Ohio EPA representative, shall be allowed to witness the test, examine testing equipment, and require the acquisition or submission of data and information necessary to assure that the source operation and testing procedures provide a valid characterization of the emissions from the source and/or the performance of the control equipment.

- A. A completed Intent to Test form shall be submitted to the appropriate Ohio EPA District Office or Local Air Pollution Control Agency where the original permit application was filed. This notice shall be made 30 days in advance and shall specify the source operating parameters, the proposed test procedures, and the time, date, place and person(s) conducting such tests.
- B. Two copies of the test results shall be submitted within 30 days after the completion of the performance test.
- C. Tests shall be performed for the following source(s) and pollutant(s):

Source

Pollutant(s)

B007

Nitrogen Oxides

RECORD(S) RETENTION AND AVAILABILITY

All records required by this Permit to Install shall be retained on file for a period of not less than three years unless otherwise indicated by Ohio Environmental Protection Agency. All records shall be made available to the Director, or any representative of the Director, for review during normal business hours.

REPORTING REQUIREMENTS

Unless otherwise specified, reports required by the Permit to

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Install need only be submitted to **Akron Air Pollution Control, 146 South High Street, Room 904, Akron, OH 44308.**

MAINTENANCE OF EQUIPMENT

This source and its associated air pollution control system(s) shall be maintained regularly in accordance with good engineering practices and the recommendations of the respective manufacturers in order to minimize air contaminant emissions.

MALFUNCTION/ABATEMENT

In accordance with OAC RULE 3745-15-06, any malfunction of the source(s) or associated air pollution control system(s) shall be reported immediately to the **Akron Air Pollution Control, 146 South High Street, Room 904, Akron, OH 44308.**

Except as provided by OAC Rule 3745-15-06(A)(3), scheduled maintenance of air pollution control equipment that requires the shutdown or bypassing of air pollution control system(s) must be accompanied by the shutdown of the associated air pollution sources.

AIR POLLUTION NUISANCES PROHIBITED

The air contaminant source(s) identified in this permit may not cause a public nuisance in violation of OAC Rule 3745-15-07.

CONSTRUCTION COMPLIANCE CERTIFICATION

The applicant shall provide Ohio EPA with a written certification (see enclosed form) that the facility has been constructed in accordance with the Permit to Install application and the terms and conditions of the Permit to Install. The certification shall be provided to Ohio EPA upon completion of construction but prior to startup of the source.

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ADDITIONAL SPECIAL TERMS AND CONDITIONS

A. Applicable Emissions Limitations and/or Control Requirements

1. **Operations/Equipment, Applicable Rules/Requirements and Emissions Limitations**

Kent State University (OEPA ID No. 1667010085), currently a Title V facility, is applying for a Permit-to-Install (PTI) for a new natural gas-fired boiler (OEPA emissions unit ID B007), rated @ 121 MMBtu/hr heat input with a low-NO_x burner, to be installed and operated in the existing steam power plant. The existing plant consists of three boilers, including two coal-fired boilers (OEPA ID B001, rated @ 97 MMBtu/hr heat input; and OEPA ID B004, rated @ 50 MMBtu/hr heat input) and one gas-fired boiler (OEPA ID B002, rated @ 143 MMBtu/hr heat input). No add-on control equipment is planned for the new boiler.

Once Boiler B007 is installed and operating, one of the three existing boilers will be placed on standby, only to be used in times of emergency (i.e., failure of any of the remaining two existing boilers or Boiler B007). It is anticipated that once Boiler B007 is operating and one of the existing boilers is on standby, there should be no significant overall change in emissions of nitrogen oxides (NO_x) for the facility. In fact, there may be a decrease in NO_x emissions, since Boiler B007 will use a low-NO_x burner.

Boiler B007 shall be regulated for the following listed emissions, under the appropriate Ohio Administrative Code (OAC) state rules and 40 CFR 60, Subpart Db - Standards of Performance federal rules. Applicable emissions limitations are included for the most stringent rules (i.e., either state or federal):

Particulates

OAC rule 3745-17-10(B): 0.020 pound of particulate emissions per million Btu actual heat input.

Opacity

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OAC rule 3745-17-07(A): 20 percent opacity as a six-minute average, except as provided by rule.

Nitrogen Oxides

OAC rule 3745-31-05: 0.055 pound of nitrogen oxides per million Btu heat input.40 CFR 60.44b: The limit based on this rule is less stringent than OAC rule 3745-31-05

2. Additional Terms and Conditions

The permittee shall include and operate a low-NO_x burner with Boiler B007.

B. Operational Restrictions

1. The use of only natural gas as fuel.
2. The maximum natural gas used per calendar year shall not exceed 905 million cubic feet.

C. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain annual records of the amount of natural gas burned each calendar year, in million cubic feet, and using the conversion factor of 1000 million Btu/million cubic feet of natural gas, the annual heat input, in million Btu of heat input/yr.
2. The permittee shall determine each calendar year, using the records from C.1 above and the nitrogen oxides emissions data from the continuous emission monitoring (CEM) system specified below, the annual nitrogen oxides emissions, in tons.
3. The permittee shall install, calibrate, maintain, and operate a CEM system for measuring nitrogen oxide emissions discharged to the atmosphere and record the output of the system. This system shall be operated and data recorded during all periods of operation except for breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments. One-hour average nitrogen oxides emission rates measured by the CEM system shall be expressed in

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lb/million Btu heat input and shall be used to calculate the average emissions rates as required by rule. The 1-hour averages shall be calculated using the data points required under 40 CFR 60.13(b). At least 2 data points must be used to calculate each 1-hour average.

4. Procedures established under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of the CEM systems.
5. Span values for nitrogen oxides shall be determined in accordance with 40 CFR 60.48b.
6. When nitrogen oxides emission data are not obtained because of CEM system breakdowns, repairs, calibration checks, and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7, Method 7A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.
7. The permittee shall maintain records of the following information for each steam generating unit operating day:
 - a. calendar date;
 - b. the average hourly nitrogen oxides emission rates (lb/million Btu heat input) measured or predicted;
 - c. the 30-day average nitrogen oxides emission rates (lb/million Btu heat input) calculated at the end of each steam generating unit operating day from the measured or predicted hourly nitrogen oxides emission rates or the preceding 30 steam generating unit operating days;
 - d. identification of the steam generating unit operating days when the calculated 30-day average nitrogen oxides emission rates are in excess of the nitrogen oxides emissions standards, with the reasons for such excess emissions as well as a

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description of corrective actions taken;

- e. identification of the steam generating unit operating days for which pollutant data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken;
- f. identification of times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data;
- g. identification of "F" factor used for calculations, method of determination, and type of fuel combusted;
- h. identification of the times when the pollutant concentration exceeded full span of the CEM system;
- i. description of any modifications to the CEM system that could affect the ability of the system to comply with Performance Specification b or c of C.7; and,
- j. results of daily CEM systems drift tests and quarterly accuracy assessments as required under Appendix F, Procedure 1.

D. Reporting Requirements

- 1. The permittee shall submit required reports in the following manner:
 - a. reports of any required monitoring and/or recordkeeping information shall be submitted to Akron Air Pollution Control Agency; and,
 - 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

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by the testing, monitoring, and 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 Akron Air Pollution Control 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.)

2. The permittee shall submit notification of the date of initial startup, as provided by 40 CFR 60.7. The notification shall include the design heat input capacity of the steam generating unit and identification of the fuel to be combusted in the subject unit.
3. The permittee shall submit to the Administrator the performance test data from the initial performance test and the performance evaluation of the CEM system using the applicable performance specifications in appendix B.
4. The permittee shall submit excess emission reports covering nitrogen oxides emissions for any calendar quarter during which there are excess emissions from the affected facility. If there are no excess emissions from the facility during the calendar quarter, the permittee shall submit a report semiannually stating that no excess emissions occurred during the semiannual reporting period.

Excess emissions, for this condition, are defined as any calculated rolling 30-day average nitrogen oxides emission rate, as determined under 40 CFR 60.46b(e) and in accordance with the terms and conditions of this permit, which exceeds the applicable emission limits as required by rule.

5. The permittee shall submit a quarterly report containing the information recorded under 40 CFR

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60.49b(g) and Monitoring and Recordkeeping Requirement No.7 of this permit. All quarterly reports shall be postmarked by the 30th day following the end of each calendar quarter.

6. The permittee shall submit annual reports which identify any exceedances of the annual fuel usage limitation, as well as the corrective actions that were taken to achieve compliance. These reports shall be submitted by January 31, of each year.
7. The permittee shall submit annual deviation (excursion) reports which identify any exceedances of the annual emission limitation for nitrogen oxides, as well as the corrective actions that were taken to achieve compliance. These reports shall be submitted by January 31, of each year.

E. Testing Requirements

1. Compliance with the emission limitations in this permit shall be determined in accordance with the following method(s):

- a. Emission Limitation

0.020 pound of particulate emissions per million Btu actual heat input

Applicable Compliance Method

Multiply the maximum hourly gas burning capacity of 0.121 million cubic feet per hour by the particulate emission factor for natural gas (5.0 pounds of particulates per million cubic feet), and dividing by the maximum hourly heat input capacity of 121 MMBtu per hour.

The above emission factor is from US EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Sections 1.3 (Table 1.3-2) and 1.4 (Table 1.4-1).

Future testing also may be required in accordance with the methods and procedures as specified by

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40 CFR Part 60, Appendix A, Method 5.

b. Emission Limitation

20 percent opacity as a six-minute average

Applicable Compliance Method

Method 9 of 40 CFR Part 60, Appendix A

c. Emission limitation

0.055 pound of nitrogen oxides per million Btu heat input

Applicable Compliance Method

The permittee shall conduct performance testing as required under 40 CFR 60.46b, in accordance with 40 CFR 60.8, using the continuous system for monitoring nitrogen oxides under 40 CFR 60.48b.

Note: The applicable nitrogen oxide emission standards under 40 CFR 60.44b apply at all times.

d. Emission limitation

24.9 tons per year of nitrogen oxides

Applicable Compliance Method

The permittee shall demonstrate compliance with the above limitation using the recordkeeping requirements of these T&C's.

F. Miscellaneous Requirements

1. The application and enforcement of the provisions of the New Source Performance Standards (NSPS), as promulgated by the United States Environmental Protection Agency, 40 CFR Part 60, are delegated to the Ohio Environmental Protection Agency. The requirements

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of 40 CFR Part 60 are also federally enforceable.