XX **Synthetic Minor Determination and/or** ☐ **Netting Determination**
Permit 02-13174

A. Source Description

GE Willoughby Quartz is a lighting operation with the following NOx emitting sources:

Ohio EPA Emissions Unit Number	**Source Description**
B001	Titusville Boiler (10.9 mmBtu/hr)
B002	Titusville Boiler (10.9 mmBtu/hr)
B004	Fire Pump House Boiler
B007	Ajax Boiler 4.0MmBtu/hr removed
B008	Emergency Generators 1&2, (4.88 mmBtu/hr, 7.04 mmBtu/hr), respectively.
B010	Emergency Generator 3 (11.26 mmBtu/hr)
B011	North natural gas engine (138 HP, 1520 BTU/hr)
B012	South natural gas engine (128 HP, 1410 BTU/hr
B015	Emergency Generator 4 (11.73 mmBtu/hr)
B016	Emergency Generator 5 (11.73 mmBtu/hr)
P001	Sand Prep Process, Tumblers 1-6(electric) and calciners 1-5(natural gas)
P006	Arc fusion machines 5
P011	Tubing furnaces 1-6, electric w/H2 pilot lights
P014 & P016	Presintering ovens w/fume incinerator(1-4) Harrop
P022	Calciner 6
P024	Tubing furnaces 7-15, electric w/H2 pilot lights
P025	Lathes 16(1.26 mmBtu/hr), immersion equipment and 3 glazers(ng)
P026	Arc fusion machine 6
P028	Presintering ovens 5 & 6
P029	Addition of Tumbler 6 to (P001)
P030	Lathes 28 & 29 (out of service)
P031	Arc fusion machine 7
P032	LD lathe 17(1.26 mmBtu/hr)
P033	LD lathe 18(1.26 mmBtu/hr)
P034	LD lathe 19(1.26 mmBtu/hr)
P035	LD lathe 20(1.26 mmBtu/hr)
P036	LD lathe 21(1.26 mmBtu/hr)
P037	LD lathe 22 (2.21 mmBtu/hr)
P038	LD lathe 23 (2.21 mmBtu/hr)
P039	LD lathe 24 (2.21 mmBtu/hr)
P040	LD lathe 25 (2.21 mmBtu/hr)
P041	LD lathe 26 (2.21 mmBtu/hr)
P042	LD lathe 27 (2.21 mmBtu/hr)
P043	Four(4) repair lathes, two (2) bench repair lathes and the hydrogen fired Crucible lathes **or L**
Z002-Z011	Calciners 7-16, (natural gas)
Z024	Tubing furnaces 16-19, 21, 50-51 electric w/H2 pilot light
Z026	Seal gas furnace-removed
Z042	
Z049-Z050	Cleaver Brooks Boilers for process water (7.323 mmBtu/hr) each
Z051	Tubing furnaces (52-54) electric w/H2 pilot light

Z054	Harper presintering oven
Z055	Sintering furnaces H-L, end plug sintering furnace, static sintering furnace and Muffle furnaces 3 & 4
Z056	Maintenance hot water
Z057	ceiling fans, (natural gas)
Z058	Calciners 1-5
Z059	Calciner/Dryer #31
Z060	Electric Static Dryers #1-20
Z061	Magnetic Separator #1
Z062	Upflush drums

B. Facility Emissions and Attainment Status

Potential NOx emissions for this facility are included in Part II, Section A.I. Table I, column 6 of these terms and conditions.

C. Source Emissions

The uncontrolled NOx potential to emit from this facility is more than 856.73 tons per year. In accordance with PSD criteria, this facility is a major source because of the potential NOx emissions and is required to obtain a Prevention of Significant Deterioration (PSD) permit.

GE Willoughby Quartz has proposed to limit NOx emissions by restricting operating hours, production and natural gas usage. Restricted operating hours, production and natural gas usage will limit potential NOx emissions to 248.2 tons per year facility wide based on a rolling 12-month summation. This Permit to Install contains terms and conditions to establish these limits.

Lake County is designated as attainment for NOx.

Potential NOx emissions including unrestricted emissions units and with restrictions for this facility are included in Part II, Section A.I. Table I, column 6 of these terms and conditions.

TOTAL <250 TONS/YR

D. Conclusion

With Federally Enforceable permit conditions, limiting total hours of operation and fuel usage, which in turn limits NOx emissions, the total allowable or restricted potential from this facility is 248.2. Record keeping and stack test requirements will be outlined in this PTI to show compliance with the proposed allowable emissions. Because this is less than 250 TPY, this facility is no longer PSD applicable and therefore, does not require PSD permitting.

State of Ohio Environmental Protection Agency

Street Address:
Lazarus Gov. Center
122 S. Front Street
Columbus, OH 43215

TELE: (614) 644-3020 **FAX:** (614) 644-2329

Mailing Address:
Lazarus Gov. Center
P.O. Box 1049
Columbus, OH 43216-1049

RE: DRAFT PERMIT TO INSTALL
LAKE COUNTY
Application No: 02-13174

CERTIFIED MAIL

	TOXIC REVIEW
	PSD
Y	SYNTHETIC MINOR
	CEMS
	MACT
	NSPS
	NESHAPS
	NETTING
	MAJOR NON-ATTAINMENT
Y	MODELING SUBMITTED
	GASOLINE DISPENSING FACILITY

DATE: 10/23/2003

General Electric Co. - Willoughby Quartz
Rob Meyers
4901 Campbell Rd
Willoughby, OH 44094

You are hereby notified that the Ohio Environmental Protection Agency has made a draft action recommending that the Director issue a Permit to Install for the air contaminant source(s) [emissions unit(s)] shown on the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the proposed installation. A public notice concerning the draft permit will appear in the Ohio EPA Weekly Review and the newspaper in the county where the facility will be located. Public comments will be accepted by the field office within 30 days of the date of publication in the newspaper. Any comments you have on the draft permit should be directed to the appropriate field office within the comment period. A copy of your comments should also be mailed to Robert Hodanbosi, Division of Air Pollution Control, Ohio EPA, P.O. Box 1049, Columbus, OH, 43266-0149.

A Permit to Install may be issued in proposed of final form based on the draft action, any written public comments received within 30 days of the public notice, or record of a public meeting if one is held. You will be notified in writing of a scheduled public meeting. Upon issuance of a final Permit to Install a fee of **$6400** will be due. Please do not submit any payment now.

The Ohio EPA is urging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Pollution Prevention at (614) 644-3469. If you have any questions about this draft permit, please contact the field office where you submitted your application, or Mike Ahern, Field Operations & Permit Section at (614) 644-3631.

Very truly yours,

Michael W. Ahern

Michael W. Ahern, Supervisor
Field Operations and Permit Section
Division of Air Pollution Control

CC: USEPA **NEDO** **PA**

LAKE COUNTY

PUBLIC NOTICE
ISSUANCE OF DRAFT PERMIT TO INSTALL **02-13174** FOR AN AIR CONTAMINANT SOURCE FOR
GENERAL ELECTRIC CO. - WILLOUGHBY QUARTZ

On 10/23/2003 the Director of the Ohio Environmental Protection Agency issued a draft action of a Permit To Install an air contaminant source for **General Electric Co. - Willoughby Quartz**, located at **4901 Campbell Road, Willoughby**, Ohio.

Installation of the air contaminant source identified below may proceed upon final issuance of Permit To Install 02-13174:

Synthetic minor PTI for various emissions units.

Comments concerning this draft action, or a request for a public meeting, must be sent in writing to the address identified below no later than thirty (30) days from the date this notice is published. All inquiries concerning this draft action may be directed to the contact identified below.

Dennis Bush, Ohio EPA, Northeast District Office, 2110 East Aurora Road, Twinsburg, OH 44087 [(330)425-9171]

DRAFT PERMIT TO INSTALL 02-13174

Application Number:	02-13174
APS Premise Number:	0243160086
Permit Fee:	**To be entered upon final issuance**
Name of Facility:	General Electric Co. - Willoughby Quartz
Person to Contact:	Rob Meyers
Address:	4901 Campbell Rd Willoughby, OH 44094

Location of proposed air contaminant source(s) [emissions unit(s)]:
4901 Campbell Road
Willoughby, Ohio

Description of proposed emissions unit(s):
Synthetic minor PTI for various emissions units.

The above named entity is hereby granted a Permit to Install for the above described emissions unit(s) pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the above described emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

Director

Part I - GENERAL TERMS AND CONDITIONS

A. State and Federally Enforceable Permit To Install General Terms and Conditions

1. Monitoring and Related Recordkeeping and Reporting Requirements

a. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:

i. The date, place (as defined in the permit), and time of sampling or measurements.

ii. The date(s) analyses were performed.

iii. The company or entity that performed the analyses.

iv. The analytical techniques or methods used.

v. The results of such analyses.

vi. The operating conditions existing at the time of sampling or measurement.

b. Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.

c. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:

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

ii. Quarterly written reports of (i) any deviations from federally enforceable <u>emission limitations</u>, <u>operational restrictions</u>, <u>and control device operating parameter limitations</u>, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the appropriate Ohio EPA District Office or local air agency. The written 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. See B.9 below if no deviations occurred during the quarter.

iii. Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted to the appropriate Ohio EPA District Office or local air agency every six months, i.e., by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.

iv. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.

2. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the appropriate Ohio EPA District Office or local air agency in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06**.**
Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

3. Risk Management Plans

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

4. Title IV Provisions

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

5. Severability Clause

A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or

condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.

6. General Requirements

a. The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and reissuance, or modification, or for denial of a permit renewal application.

b. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.

c. This permit may be modified, reopened, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.

d. This permit does not convey any property rights of any sort, or any exclusive privilege.

e. The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying, reopening or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

7. Fees

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable Permit To Install fees within 30 days after the issuance of this Permit To Install.

8. Federal and State Enforceability

Only those terms and conditions designated in this permit as federally enforceable, that are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA, the State, and citizens under the Act. All other terms and conditions of this permit shall not be federally enforceable and shall be enforceable under State law only.

9. Compliance Requirements

a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.

b. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:

i. At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.

ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.

iii. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.

iv. As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.

c. The permittee shall submit progress reports to the appropriate Ohio EPA District Office or local air agency concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually, or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:

i. Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.

ii. An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

10. Permit To Operate Application

a. If the permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77, the permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or

modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

b. If the permittee is required to apply for permit(s) pursuant to OAC Chapter 3745-35, the source(s) identified in this Permit To Install is (are) permitted to operate for a period of up to one year from the date the source(s) commenced operation. 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. Pursuant to OAC Chapter 3745-35, the permittee shall submit a complete operating permit application within ninety (90) days after commencing operation of the source(s) covered by this permit.

11. 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.

12. Air Pollution Nuisance

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

B. State Only Enforceable Permit To Install General Terms and Conditions

1. Compliance Requirements

The emissions unit(s) identified in this Permit to Install shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.

2. Reporting Requirements

The permittee shall submit required reports in the following manner:

a. Reports of any required monitoring and/or recordkeeping of state-only enforceable 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 state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected 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 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.)

3. Permit Transfers

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The appropriate Ohio EPA District Office or local air agency must be notified in writing of any transfer of this permit.

4. Termination of Permit To Install

This permit to install shall terminate within eighteen months of the effective date of the permit to install if the owner or operator has not undertaken a continuing program of installation or modification or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation or modification. 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.

5. Construction of New Sources(s)

The proposed emissions unit(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 cannot meet the requirements of this permit or cannot meet applicable standards.

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the 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 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 cannot meet the requirements of this permit or cannot meet applicable standards.

6. 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.

7. Applicability

This Permit To Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate Permit To Install for the installation or modification of any other emissions unit(s) are required for any emissions unit for which a Permit To Install is required.

8. 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.

9. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations (See Section A of This Permit)

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.

C. Permit To Install Summary of Allowable Emissions

The following information summarizes the total allowable emissions, by pollutant, based on the individual allowable emissions of each air contaminant source identified in this permit.

SUMMARY (for informational purposes only)
TOTAL PERMIT TO INSTALL ALLOWABLE EMISSIONS

Pollutant	Tons Per Year
NOx	248.2
PE	24.40
VOC	10.41

General Electric Co. - Willoughby Quartz **Facility ID: 0243160086**
PTI Application: 02-13174
Issued: To be entered upon final issuance

Part II - FACILITY SPECIFIC TERMS AND CONDITIONS

A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions

I EMISSION LIMITATIONS:

NOx POTENTIAL TO EMIT ANALYSIS for permitted, non permitted, restricted and non restricted emissions units , under restricted conditions and EMISSION LIMITATIONS

The Red text line items at the bottom of the following table are either classified as trivial units or insignificant units that do not have NOx emissions limitations. Entry of 'D' in the VOC or CO columns denotes DeMinimis emissions level on an unrestricted Potential to Emit (PTE) basis. Calculations for VOC and CO levels

TABLE 1

Please note that the calculations for the following emissions units are attached to this Permit to Install.

Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
B001& B002 combo	Titusville Boilers-10.9 mmBtu/hr each	8760	122 mmscf NG/rolling 12 months combined	1.04 lbs/hr each; 2.08 combined	4. 55 TPY each (9.1 combo)	3.05 TPY rolling, 12 month summation each; (6.10 combined)	1.29 combined	D	3.815 each

General Electric Co. - Willoughby Quartz **Facility ID: 0243160086**
PTI Application: 02-13174
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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
Z049 &Z050	CB Boilers for Process H2O 7.323 mmBtu/hr each	8760	74 Mmscf per 12 month period combined	0.70 lb/hr each; 1.40 lbs/hr combo	3.06 TPY each 6.12 TPY combo	3.7 TPY rolling, 12 month summation combined	0.78 TPY	D	2.56 each
B007	Ajax Boiler 4.0mmBtu/hr removed	____	____	_____	_____	_____	____	-	-
B008	Emergency Generators1& 2 4.88 mmBtu/hr; 7.04 mmBtu/hr respectively	500	7299 gallons diesel fuel/yr rolling summation all combined (B008, B010, B015, B016)	#1 15.61 Lbs/hr #2 22.53 Lbs/hr	#1 3.9 TPY #2 5.63 TPY @500 hrs/yr each	1.6 TPY NOx (Gen 1-5 combined with restricted fuel usage)	0.310 lb/mmBtu per generator (short term limit) 0.31 TPY combo	D	D

General Electric Co. - Willoughby Quartz **Facility ID: 0243160086**
PTI Application: 02-13174
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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
B010	Emergency Generator #3, 11.26 mmBtu/hr	500	500 HRS/GEN Maximum OR→ 7299 gallons/yr rolling summation all combined (B008, B010, B015, B016)	36.03 Lbs/hr	9.01 TPY @ 500 hrs/yr	1.6 TPY NOx (Gen 1-5 combined with restricted fuel usage)	0.310 lb/mmBtu per generator (short term limit)	D	2.39
B015& B016	Emergency generators 4-5 11.73mmBtu/hr each (Not permitted)	500		#4 37.54 Lbs/hr #5 37.54 Lbs/hr	#4 9.38 TPY #5 9.38TPY @ 500 hrs/yr		0.310 lb/mmBtu per generator (short term limit)	D	2.50 each
P001	Sand Prep Process and Tumblers 4&5(electric) and Calciners (1-5) (natural gas)	8760	limit natural gas usage to 112 Mmscf per rolling, 12 month summation for calciners (1-16) combined	0.118 lb/hr per calciner 1.89 lbs/hr all 16 combined	0.52 TPY per calciner 5.6 TPY rolling summation all 16 combined	0.52 TPY 5.6 TPY rolling 12 month summation all 16 combined	2.04 lbs/hr PM	D	D

General Electric Co. - Willoughby Quartz **Facility ID: 0243160086**
PTI Application: 02-13174
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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
P022	Calciner #6 (natural gas)	8760					0.25 lbs/hr and 6 lbs/day	D	D
Z002-Z011	Calciners (7-16) (natural gas)	8760					None	D	D
P006	Arc fusion machine #1-4 (removed); only #5 remains modified 1998 without PTI		limit of 26,667 crucibles per rolling, 12-month summation for all 3 arc fusion machines	1.36 lbs/hr 0.075 lb/crucible	6 TPY	1 TPY per rolling, 12 month summation		D	D

General Electric Co. - Willoughby Quartz **Facility ID: 0243160086**
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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
P026 proposed	Arc fusion machine #6 proposed	8760		38.96 lbs/hr for CM 6 and 7 combined 19.48 lbs/hr 2.19 lbs NOx/crucible		31.8/2 TPY; 15.9 TPY based on a rolling 12-month summation	5.85 TPY	D	D
P031 proposed	Arc fusion machine #7	8760		38.96 lbs/hr for CM 6 and 7 combined 19.48 lbs/hr 2.19 lbs NOx/crucible		31.8/2 TPY; 15.9 TPY based on a rolling 12-month summation	5.85 TPY	D	D

General Electric Co. - Willoughby Quartz **Facility ID: 0243160086**
PTI Application: 02-13174
Issued: To be entered upon final issuance

Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
P025, and P032-P042	Lathes 16-27 2.21 mmBtu/hr each	8760	limit of natural gas usage 30.29 scf per year based on a rolling, 12-month summation, all combined	26.72 lbs/hr each	117.03 TPY each	194.1 TPY based on a rolling 12-month summation from all lathes combined including emissions units P025, P032-P043 combined.		D	D
P043	Repair Lathes (4)	8760		10.82 lbs/hr combined	31.57 TPY combined			D	D
P043	Repair Bench Lathes (2) and crucible repair lathes	8760		0.33 lb/hr combined	1.46 TPY combined			D	D
P028	Presintering ovens 5 and 6 (electric)	8760	____	_____	0	0		D	D
P029	Addition of tumbler #6 to P001	8760	see P001	see P001	see P001	see P001		D	D

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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
P030	LD lathes 28 and 29 Removed								
Insignifi-cant emissions units									
B004	Fire Pump House Boiler (Hot Water)	8760	None	0.10 lb/hr	0.42 TPY	0.42 TPY	NONE	D	D
B011 Exempt by 3745-31-03(A)(4)(a)	North natural gas engine 1520 BTU/hr 138 HP (RECORD KEEPING Required)	500	NONE	3.30 lbs/hr	0.83 TPY	0.83 TPY	NONE	D	D

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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
B012 Exempt by 3745-31-03(A)(4)(a)	South natural gas engine 1410 BTU/hr 128 HP (RECORD KEEPING Required)	500	None	3.10 lbs/hr	0.78 TPY	0.78 TPY	NONE	D	D
Z042	Southwest NG Engine #3	500	500 Hours	3.10 lb/hr	0.78 TPY	0.78 TPY	NONE	D	D
P011	Tubing furnaces (1-6) electric with H2 pilot light	8760	None	0.0091 lb/hr	0.040 TPY combined	0.04 TPY	None	D	D
P024	Tubing furnaces (7-15) electric with H2 pilot light	8760	None	0.0144 lb/hr	0.0627 TPY combined	0.0627 TPY combined	None	D	D

General Electric Co. - Willoughby Quartz **Facility ID: 0243160086**
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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
Z024	Tubing furnaces (16-19, 21, 50&51) electric with H2 pilot light	8760	None	0.012 lb/hr	0.0509 TPY combined	0.0509 TPY combined	None	D	D
Z051	Tubing furnaces (52-54) electric with H2 pilot light	8760	None	0.005 lb/hr	0.022 TPY combined	0.022 TPY combined	None	D	D
Z054	Harper Presintering Oven	8760	None	0.94 lb/hr	0.41 TPY	0.41 TPY	None	D	D

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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
Z055	Sintering furnaces H-L, End plug sintering furnace, static sintering furnace and Muffle furnaces 3&4	8760	None	0.109 lb/hr combined	0.48 TPY combined	0.48 TPY combined	None	D	D
Z056	Maintenance-Hot	8760	None	0.09 lb/hr	0.40 TPY	0.40 TPY	None	D	D
Z057	Ceiling fans (natural gas)	8760	None	0.08 lb/hr	0.35 TPY combined	0.35 TPY combined	None	D	D
P014 & P016	Presintering ovens w/fume incinerator (1-4) Harrop	8760	None	0.094 lb/hr	0.41 TPY	0.41 TPY	None	11.5	D

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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
Z026	Seal gas furnace (Removed)	___	___	___	___	___	___	___	___
Z027	Graphite furnace (natural gas) Removed	___	____	____	____	____	____	___	___
Z058	Glazers (2 production and a fiber optic)	8760	None		0.1 tpy	0.1tpy	None	___	D
Total (Insig & DeMin)	Subtotal of Insignificant and DeMinimis Emissions as presented in Red above					5.13 NOx			

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Ohio EPA Unit number 1	Source Description 2	Oper Hours 3	Restricted Operating hours, fuel usage or pieces produced 4	Ohio EPA Allowable NOx Emission Rate lbs/hr 5	Potential NOx Emissions (8760 hours or permit by rule exempt) 6	Restricted Potential Annual NOx Emissions (limited, hours production or fuel usage) 7	Restricted Potential PM emissions or allowable 8	VOC (Un-re-stric t-ed) PTE (TPY)	CO (Un-re-stric t-ed) PTE (TPY)
Fugitive Emission									
Total	Minus Insignificant and DeMinimis Emissions as presented in Red above					240.2 NOx			

I. OPERATIONAL RESTRICTIONS:

The maximum NOx emissions for all emissions units listed in Table 1 and Table 2 shall not exceed 248.2 tons per year based upon a rolling 12-month summation through restricted operations, production and operating hours of selected units. The potential of unrestricted trivial emissions units at this facility shall also be included in the actual annual total. To ensure enforceability during the first 12 calendar months of operation after issuance of this permit to install. The facility wide sum of NOx emissions from all NOx emitting units at this facility shall not exceed the following:

Month	NOx Emissions (tons)
1	80
1-2	95
1-3	110
1-4	125
1-5	140
1-6	155
1-7	169
1-8	184
1-9	199
1-10	214
1-11	229
1-12	248.2

For the determination of facility-wide actual NOx emissions to assure Synthetic Minor status, all sources of emissions, regardless of the size and permit exemption status, shall be included in the summation.

The following insignificant emissions units shall be restricted by the following fuel usage, and hours of operation in accordance with OAC rule 3745-31-05(D).

The maximum annual and hourly operating and/or usage rolling restrictions for all insignificant emissions units that emit NOx are listed in the following table by emissions unit identification number.

In order to insure federal enforceability for the first twelve calendar months following the final issuance of this permit, the permittee shall limit operating hours and/or material usage for the emissions units listed as required in the following table. After the first twelve calendar months of operation following the final issuance of this permit, compliance with the annual NOx emission limitation shall be based upon monthly rolling, 12 consecutive month summations of NOx emissions.

Please note that the calculations for the following emissions units are attached to this permit to install.

All of the following limits are 12 consecutive month rolling summations:

TABLE 2

Year/ Month	Z049-50 **74 Mmscf ng /yr rolling** (Mmscf ng)	B011 **500 hr/yr rolling summation** (hours)	B012 **500 hr/yr rolling summation** (hours)	P001, P022, Z002-Z011 Calciners 1-16 **112 Mmscf ng/yr rolling summation** (Mmscf ng)
1-1	6	42	42	9
1-2	12	83	83	18
1-3	18	124	124	27
1-4	24	165	165	36
1-5	30	206	206	45
1-6	36	247	247	54
1-7	42	288	288	63
1-8	48	329	329	72
1-9	54	369	369	81
1-10	60	410	410	90
1-11	66	451	451	99
1-12	74	500	500	112

II. MONITORING AND RECORD KEEPING REQUIREMENTS

1. The permittee shall maintain monthly records of the following information in accordance with OAC rule 3745-31-05(D):

   a. During the first 12 calendar months of operation following the final issuance of this permit,

      i. the cumulative individual natural gas usage in million standard cubic feet (MMscf) for emissions units Z049, Z050, P001, P022, Z002-Z011;

ii. the cumulative NOx emissions for each calendar month for all of the above emissions units; and

iii. Beginning after the first 12 calendar months of operation following the final issuance of this permit, the rolling consecutive 12-month cumulative summation of NOx from each of the above emissions units.

iv. the total NOx emissions from all emissions units listed in Table 1 of these terms and conditions.

III. REPORTING REQUIREMENTS-FACILITY-WIDE

1. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. the cumulative individual natural gas usage in million standard cubic feet (MMscf) for emissions units Z049, Z050, P001, P022, Z002-Z011;

   b. the rolling, 12-month, facility-wide limitation for NOx emissions; and

   c. for the first 12 calendar months of operation following the effective date of this Permit to Install, the maximum monthly allowable NOx emissions levels.

   These reports shall be submitted in accordance with Part A.1.c. in the General Terms and Conditions of this permit.

   The permittee shall also submit annual reports which specify the total NOx emissions from each emission unit listed in Part II.A.I of this permit and the total NOx emissions from all emissions units combined for the previous calendar year. These reports shall be submitted by January 31 of each year.

IV. TESTING REQUIREMENTS

1. Compliance with the emission limitations in Part II.A.I. of these terms and conditions shall be determined in accordance with the following methods:

1.a Emission Limitation

NOx emissions shall not exceed the limitations as listed in the above Table in Section Part II.A.1, column 5 for each emissions unit.

Applicable Compliance Method

Stack Testing if required by Ohio EPA, specifically, those units which emit or potentially emit NOx, such as those with added N2 and higher temperatures which promotes NOx formation and any unit with new operating parameters.

1.b Emission Limitation

Annual limitations as listed in column 7 in the Table in Part II.A.I of this permit.

Applicable Compliance Method:

Because the NOx annual emission limitations are based on restricted operating hours, fuel usage and production restrictions, and the short term limitations for NOx, compliance shall be determined by the record keeping as required in Part II.A.2 of this permit.

2. If required, the permittee shall conduct, or have conducted, emission testing of the mass emission rate (emission rate) of NOx for these emissions unit in accordance with the following:

a. The emission testing for NOx shall be conducted within 6 months after issuance of this permit.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for NOx.

c. The following test method from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for NOx:

Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional

time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

B. State Only Enforceable Permit To Install Facility Specific Terms and Conditions

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B001-Titusville natural gas fired boiler (10.9 MmBtu/hr)	OAC rule 3745-31-05(D)	The combined NOx emissions from emissions units B001 and B002 shall not exceed 6.1 tons per year based on rolling, 12-month summations.
	OAC rule 3745-17-10(B)(1)	Particulate emissions from this boiler shall not exceed 0.020 pound per million Btu of actual heat input.
	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.
	OAC rule 3745-21-08	See A.I.2.b.
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a Per OAC rule 3745-18-06(A), this emissions unit is exempt from paragraphs (D), (F), and (G) because the emissions unit only burns natural gas as fuel. OAC rule 3745-18-06 imposes no requirements on fuel burning equipment that burns only natural gas.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by complying with all applicable rules.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule

revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by complying with all applicable rules.

2.c This emissions unit is capable of burning only natural gas. Any change to an alternate fuel will require the permittee to obtain a permit to install.

II Operational Restrictions

1. The maximum quantity of natural gas burned in emissions units B001 and B002, combined, shall not exceed 122 million standard cubic feet of natural gas per year, based on rolling 12-month summations of the fuel usages. To ensure enforceability of this provision during the first twelve (12) months following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage restrictions:

CALENDAR MONTHS	ALLOWABLE CUMULATIVE TOTAL VOLUME of NATURAL GAS USAGE (B001 and B002 COMBINED)
(months)	(MMscf)
1-1	40
1-2	48
1-3	55
1-4	63
1-5	70
1-6	77
1-7	85
1-8	92
1-9	100
1-10	107
1-11	115
1-12	122

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitation based on rolling, 12-month summations of the fuel usages.

III Monitoring and/or Recordkeeping

1. By the effective date of this permit, the permittee shall install a natural gas flow meter on the natural gas supply line for this emissions unit to allow for monitoring and recording the natural gas fuel consumption.

2. The permittee shall monitor and record the following information for emissions units B001 and B002 combined, on a monthly basis:

   a. the total amount of natural gas used;

   b. the total amount of NOx emitted per month;

   c. after the first twelve months of operation following the effective date of this Permit to Install, the total amount of natural gas used based on a rolling, 12-month summation; and

   d. after the first twelve months of operation following the effective date of this Permit to Install, the total amount of NOx emitted, in tons, based on a rolling, 12-month summations of the monthly emissions.

   The NOx emissions shall be calculated by multiplying the total amount of natural gas used, in mmscf, by 100 lbs of NOx per mmscf of natural gas, which is the emission factor from Table 1.4-1 of AP-42 (7/98), and dividing by 2000 lbs per ton.

   The rolling, 12-month summation of individual NOx emissions shall be calculated by adding the individual NOx emissions for the preceding 11 calendar months plus the total NOx emissions for the current calendar month.

   Also, during the first 12 months of operation following the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, in mmscf, for each calendar month.

IV Reporting Requirements

1. All reports or notifications shall be submitted to the Northeast District Office of the Ohio EPA as required in Section A.1.c. of the General Terms and Conditions of this Permit unless otherwise stated.

2. The permittee shall submit quarterly deviation (excursion) reports that identify for emissions units B001 and B002, combined, each record showing an exceedance of:

   a. the rolling, 12-month restriction for fuel usage; and/or

   b. the rolling 12-month NOx emission limitation.

3. The permittee shall submit quarterly deviation (excursion) reports that identify, for emissions units B001 and B002, combined, all exceedances of the monthly cumulative natural gas usage limitations.

V Testing Requirements

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

1.a Emission Limitation

Visible particulate emissions from the stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method

If required by the Ohio EPA, compliance shall be determined through visible particulate emissions observations performed in accordance with Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR, Part 60, Appendix A, and the procedures specified in OAC rule 3745-17-03(B)(1).

1.b Emission Limitation

The emissions shall not exceed 0.020 pound of particulate emissions per mmBtu of actual heat input.

Applicable Compliance Method

For the use of natural gas, compliance shall be determined by dividing the AP-42 (Fifth Edition, Table 1.4-2, 7/98) emission factor for natural gas combustion (1.9 lbs/mmcu ft) by the heating value of natural gas (1050 Btu/cu ft).

If required by the Ohio EPA, the permittee shall determine compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5 and the procedures specified in OAC rule 3745-17-03(B)(9).

1.c Emission Limitation -

The NOx emissions shall not exceed 6.1 tons per year for emissions units B001 and B002 combined, based on a rolling 12-month summation of the NOx emissions.

Applicable Compliance Method:

Compliance with the tons per year limitation shall be determined by the record keeping in Section A.III.3.

Compliance with the pound per hour emission limitation shall be demonstrated by multiplying the maximum hourly heat input capacity of the boiler (10.9 MmBtu/hr) by the emission factor from "Compilation of Air Pollutant Emission Factors", Table 1.4-1 (7/98) for natural gas combustion (100 lbs of NOx per mmscf), and dividing by the heat content of natural gas (1020 Btu/cu ft). If required by the Ohio EPA, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60 Appendix A, Methods 1-4 and 7.

VI Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B001 - Titusville natural gas-fired boiler (10.9 mmBtu/hr)	none	none

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B002-Titusville natural gas fired boiler (10.9 mmBtu/hr)	OAC rule 3745-31-05(D)	The combined NOx emissions from emissions units B001 and B002 shall not exceed 6.1 tons per year based on rolling, 12-month summations.
	OAC rule 3745-17-10(B)(1)	Particulate emissions from this boiler shall not exceed 0.020 pound per million Btu of actual heat input.
	OAC rule 3745-17-07(A)	Visible particulate emissions from the stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-21-08	See A.I.2.b.
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a Per OAC rule 3745-18-06(A), this emissions unit is exempt from paragraphs (D), (F), and (G) because the emissions unit only burns natural gas as fuel. OAC rule 3745-18-06 imposes no requirements on fuel burning equipment that burns only natural gas.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by complying with all applicable rules.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State

Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by complying with all applicable rules.

2.c This emissions unit is capable of burning only natural gas. Any change to an alternate fuel will require the permittee to obtain a permit to install.

II Operational Restrictions

1. The maximum quantity of natural gas burned in emissions units B001 and B002, combined, shall not exceed 122 million standard cubic feet of natural gas per year, based on rolling 12-month summations of the fuel usages. To ensure enforceability of this provision during the first twelve (12) months following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage restrictions:

CALENDAR MONTHS	ALLOWABLE CUMULATIVE TOTAL VOLUME of NATURAL GAS USAGE (B001 and B002 COMBINED)
(months)	(MMscf)
1-1	40
1-2	48
1-3	55
1-4	63
1-5	70
1-6	77
1-7	85
1-8	92
1-9	100
1-10	107
1-11	115
1-12	122

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitation based on rolling, 12-month summations of the fuel usages.

III Monitoring and/or Recordkeeping

1. By the effective date of this permit, the permittee shall install a natural gas flow meter on the natural gas supply line for this emissions unit to allow for monitoring and recording the natural gas fuel consumption.

2. The permittee shall monitor and record the following information for emissions units B001 and B002 combined, on a monthly basis:

   a. the total amount of natural gas used;

   b. the total amount of NOx emitted per month;

   c. after the first twelve months of operation following the effective date of this Permit to Install, the total amount of natural gas used based on a rolling, 12-month summation; and

   d. after the first twelve months of operation following the effective date of this Permit to Install, the total amount of NOx emitted, in tons, based on a rolling, 12-month summations of the monthly emissions.

   The NOx emissions shall be calculated by multiplying the total amount of natural gas used, in mmscf, by 100 lbs of NOx per mmscf of natural gas, which is the emission factor from Table 1.4-1 of AP-42 (7/98), and dividing by 2000 lbs per ton.

   The rolling, 12-month summation of individual NOx emissions shall be calculated by adding the individual NOx emissions for the preceding 11 calendar months plus the total NOx emissions for the current calendar month.

   Also, during the first 12 months of operation following the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, in mmscf, for each calendar month.

IV Reporting Requirements

1. All reports or notifications shall be submitted to the Northeast District Office of the Ohio EPA as required in Section A.1.c. of the General Terms and Conditions of this Permit unless otherwise stated.

2. The permittee shall submit quarterly deviation (excursion) reports that identify for emissions units B001 and B002, combined, each record showing an exceedance of:

   a. the rolling, 12-month restriction for fuel usage; and/or

   b. the rolling 12-month NOx emission limitation.

3. The permittee shall submit quarterly deviation (excursion) reports that identify, for emissions units B001 and B002, combined, all exceedances of the monthly cumulative natural gas usage limitations.

V Testing Requirements

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

1.a Emission Limitation

Visible particulate emissions from the stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method

If required by the Ohio EPA, compliance shall be determined through visible particulate emissions observations performed in accordance with Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR, Part 60, Appendix A, and the procedures specified in OAC rule 3745-17-03(B)(1).

1.b Emission Limitation

The emissions shall not exceed 0.020 pound of particulate emissions per mmBtu of actual heat input.

Applicable Compliance Method

For the use of natural gas, compliance shall be determined by dividing the AP-42 (Fifth Edition, Table 1.4-2, 7/98) emission factor for natural gas combustion (1.9 lbs/mmcu ft) by the heating value of natural gas (1050 Btu/cu ft).

If required by the Ohio EPA, the permittee shall determine compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5 and the procedures specified in OAC rule 3745-17-03(B)(9).

1.c Emission Limitation -

The NOx emissions shall not exceed 6.1 tons per year for emissions units B001 and B002 combined, based on a rolling 12-month summation of the NOx emissions.

Applicable Compliance Method:

Compliance with the tons per year limitation shall be determined by the record keeping in Section A.III.3.

Compliance with the pound per hour emission limitation shall be demonstrated by multiplying the maximum hourly heat input capacity of the boiler (10.9 mmBtu/hr) by the emission factor from "Compilation of Air Pollutant Emission Factors", Table 1.4-1 (7/98) for natural gas combustion (100 lbs of NOx per mmscf), and dividing by the heat content of natural gas (1020 Btu/cu ft). If required by the Ohio EPA, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60 Appendix A, Methods 1-4 and 7.

VI Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B002 - Titusville natural gas-fired boiler (10.9 mmBtu/hr)		

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B008 - Emergency Diesel Generators 1 and 2 (ID 3412 and 3142); 4.88 mmBtu/hr (140 horsepower) and 7.04 mmBtu/hr (210 horsepower), respectively	OAC rule 3745-31-05(A)(3)(3)	NOx emissions from generators 1 and 2 shall not exceed 15.62 pounds per hour and 22.53 pounds per hour, respectively. The requirements of this rule also include compliance with OAC rules 3745-31-05(D), 3745-17-07, 3745-17-11, 3745-18-06, and 3745-23-06.
The requirements of this permit supercede those requirements included in Permit to Install number 02-7485 issued on May 18, 1994.	OAC rule 3745-31-05(D)	Combined NOx emissions from emissions units B008, B010, B015 and B016 shall not exceed 1.6 tons per year based on a rolling, 12-month summation.
	OAC rule 3745-23-06(B)	See A.I.2.c below.
	OAC rule 3745-17-11(B)(5)(a)	Particulate emissions from each generator shall not exceed 0.310 lb/mmBtu, from emergency generators 1-5 (See A.I.2.a below.)
	OAC rule 3745-18-06(G)	Sulfur dioxide emissions from each generator shall not exceed 0.5 pound of sulfur dioxide per mmBtu of actual heat input.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% percent opacity, as a six-minute average, except as provided by rule.

2. Additional Terms and Conditions

2.a The emission limitation specified in this rule citation has been revised based upon a change in the applicable emission factor contained in USEPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors. The revised rule was adopted by the Director of Ohio EPA in December, 1997. The USEPA has agreed to consider this revised rule as federally enforceable during the time from the effective date of USEPA approval of this limitation as a revision to the Ohio SIP for particulate matter.

2.b This is a Synthetic Minor Permit for GE Willoughby Quartz located at 4900 Campbell Road in Lake County. The facility has applied for a Permit to Install for 2 crucible machines (P026-CM#6, P031-CM #7) and 2 emergency generators (B015-Emergency Generator #4, B016-Emergency Generator #5) all of which have never been permitted. Additionally, all other permitted non-trivial NOx emitting emission units at this facility have been included in this permit. It is through this Permit to Install that the potential to emit will be restricted to less than 250 TPY NOx thus creating a synthetic minor for the entire facility for Prevention of Significant Deterioration (PSD).

2.c Compliance with the "latest available control techniques and operating practices" requirements as described in OAC rule 3745-23-06 shall include compliance with the emission limitation established pursuant to OAC rule 3745-31-05(A)(3)(3).

2.d The diesel fuel oil burned in this unit, shall have a sulfur content which is sufficient to comply with the allowable sulfur dioxide emission limitation of 0.5 pound of sulfur dioxide per MmBtu of actual heat input, on an "as received" basis.

II. Operational Restrictions

1. The permittee shall burn only diesel fuel in this emissions unit.

2. The maximum quantity of diesel fuel burned in emissions units B008, B010, B015, and B016 (Emergency Diesel Generators 1, 2, 3, 4 and 5) combined shall not exceed 7,299 gallons based on a rolling 12-month summation of fuel usage. To ensure enforceability of this provision during the first twelve (12) months of operation following the effective date of this Permit to Install, the
permittee shall not exceed the following diesel fuel usage limitations:

CALENDAR MONTHS FOLLOWING PTI ISSUANCE (months)	ALLOWABLE CUMULATIVE TOTAL VOLUME of DIESEL FUEL FOR B008, B010, B015, B016 COMBINED (gallons)
1-1	608
1-2	1216
1-3	1824
1-4	2432
1-5	3040

1-6	3648
1-7	4256
1-8	4864
1-9	5472
1-10	6080
1-11	6688
1-12	7299

After the first 12 calendar months of operation following final issuance of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall properly install, calibrate, maintain, and operate a diesel fuel flow meter on the individual diesel fuel supply lines of this emissions unit to allow for accurate determination of the diesel fuel consumption.

2. The permittee shall monitor and record the following information for this emissions unit on a monthly basis:

   a. the total amount of diesel fuel used in gallons per month in emissions units B008, B010, B015 and B016 combined;

   b. the total amount of NOx emitted per month from emissions units B008, B010, B015, and B016 combined;

   c. after the first twelve months following the effective date of this Permit to Install, the total amount of diesel fuel used based on a rolling, 12-month summation in gallons/year in emissions units B008, B010, B015 and B016 combined; and

   d. after the first twelve months following the effective date of this Permit to Install, the total amount of NOx emitted per year based on a rolling, 12-month summation from emissions units B008, B010, B015, and B016 combined.

3. 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 lb(s) per MmBtu.

4. The permittee shall collect or require the oil supplier to collect a representative grab sample for each shipment of oil that is received for burning in this emissions unit. The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with the following ASTM methods:

   a. ASTM method D4294, ASTM method D240, or ASTM method 6010 for sulfur content; and

b. ASTM method D240 for heat content.

Alternative equivalent methods may be used upon written approval by the Northeast District Office of the Ohio EPA.

5. For each day during which the permittee burns a fuel other than diesel fuel in this emissions unit, the permittee shall maintain a record of the type and quantity of the alternative fuel burned in this emissions unit.

IV. Reporting Requirements

1. All reports shall be submitted as required in Section A.1.c. of the General Terms and Conditions of this Permit to Install unless otherwise stated.

   a. The permittee shall submit quarterly deviation (excursion) reports that identify any record showing an exceedance of the rolling monthly summation limit of fuel usage in emissions units B008, B010, B015 and B016 combined as described in the table of Part A.II.2. of these terms and conditions.

   b. The permittee shall submit quarterly deviation (excursion) reports that identify any record (calculation) showing an exceedance of the 0.5 lb sulfur dioxide limit per million BTU of heat input limitation. The notification shall include a copy of any such record and shall be sent to the Northeast District Office of the Ohio EPA, as required in Section A.1.c. of the General Terms and Conditions of this permit.

   c. The permittee shall submit quarterly deviation (excursion) reports that identify each day a fuel other than diesel fuel is used in this emissions unit.

V. Testing Requirements

1. Compliance with the emission limitations specified in Section A.I of this permit shall be determined in accordance with the following methods:

   a. Emission Limitation:

      0.310 lb/mmBtu particulate emissions from each generator

Applicable Compliance Method:

Compliance with this emission limitation for generator 1 (4.88 mmBtu/hr) and generator 2 (7.04 mmBtu/hr) shall be determined by the emission factor found in " Compilation of Air Pollutant Emission Factors", Table 3.3-1 (10/96) for diesel (0.31 lb PM/MmBtu).

If required, the permittee shall demonstrate compliance with this emissions limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5 and the procedures specified in OAC rule 3745-17-03(B)(10).

b. Emission Limitation:

0.5 pound of sulfur dioxide per mmBtu per generator of actual heat input

Applicable Compliance Method:

Compliance shall be based on the records required by Section A.III.3. of this permit. The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)(2) as follows:

$$ER = 1 \times 10^6 / H \times D \times S \times 1.974$$

where ER = the emission rate in lbs of sulfur dioxide per MmBtu;
H = the heat content of the liquid fuel in BTU per gallon;
D= the density of the liquid fuel in pounds per gallon; and
S = the decimal fraction of sulfur in the liquid fuel.

c. Emission Limitation:

NOx emissions from generators 1 and 2 shall not exceed 15.62 pounds per hour and 22.53 pounds per hour, respectively and 1.6 tons of NOx emissions from emissions units B008, B010, B015 and B016, combined based on a rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be demonstrated by multiplying the maximum rated heat input of the generator by the emission factor from "Compilation of Air Pollutant Emission Factors" Table 3.4-1(10/96) for NOx (3.2 lbs/MmBtu) and the record keeping and monitoring requirements of Part A.III.2 and the table in Part II.2 of these terms and conditions.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A Methods 1-4 and Method 7 and the requirements of OAC rule 3745-31-05.

d. Emission Limitation:

Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average.

Applicable Compliance Method:

If required, compliance shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60 Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

VI. Miscellaneous Requirements

none

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B008 - Emergency Diesel Generators 1 and 2 (ID 3412 and 3142)		

2. Additional Terms and Conditions

2.a none

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B010 - Emergency Generator 3 (11.26 mmBtu/hr) The requirements of this permit supercede those requirements identified in Permit to Install number 02-7485 issued on May 18, 1994.	OAC rule 3745-31-05(A)(3)(3)	Oxides of nitrogen (NOx) emissions from this emissions unit shall not exceed 36.03 pounds per hour. The requirements of this rule also include compliance with OAC rules 3745-31-05(D), 3745-17-07, 3745-17-11, 3745-18-06, and 3745-23-06.
	OAC rule 3745-31-05(D)	Combined NOx emissions from emissions units B008, B010, B015 and B016 shall not exceed 1.6 tons per year based on a rolling, 12-month summation.
	OAC rule 3745-17-11(B)(5)(a)	Particulate emissions from this emissions unit shall not exceed 0.310 lb/mmBtu from emergency generators 1-5 combined (See A.I.2.a below)
	OAC rule 3745-18-06(G)	Sulfur dioxide emissions from this emissions unit shall not exceed 0.5 pound of sulfur dioxide per mmBtu of actual heat input.
	OAC rule 3745-23-06(B)	See A.I.2.c below.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% percent opacity, as a six-minute average, except as provided by rule.

2. Additional Terms and Conditions

2.a The emission limitation specified in this rule citation has been revised based upon a change in the applicable emission factor contained in USEPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors. The revised rule was adopted by the Director of Ohio EPA in December, 1997. The USEPA has agreed to consider this revised rule as federally enforceable during the time from the effective date of USEPA approval of this limitation as a revision to the Ohio SIP for particulate matter.

2.b This is a Synthetic Minor Permit for GE Willoughby Quartz located at 4900 Campbell Road in Lake County. The facility has applied for a Permit to Install for 2 crucible machines (P026-CM#6, P031-CM #7) and 2 emergency generators (B015-Emergency Generator #4, B016-Emergency Generator #5) all of which have never been permitted. Additionally, all other permitted non-trivial NOx emitting emission units at this facility have been included in this permit. It is through this Permit to Install that the potential to emit will be restricted to less than 250 TPY NOx thus creating a synthetic minor for the entire facility for Prevention of Significant Deterioration (PSD).

2.c Compliance with the "latest available control techniques and operating practices" requirements as described in OAC rule 3745-23-06 shall include compliance with the emission limitation established pursuant to OAC rule 3745-31-05(D).

2.d The diesel fuel oil burned in this unit, shall have a sulfur content which is sufficient to comply with the allowable sulfur dioxide emission limitation of 0.5 pound of sulfur dioxide per MmBtu of actual heat input, on an "as received" basis.

II. Operational Restrictions

1. The permittee shall burn only diesel fuel oil in this emissions unit.

2. The maximum quantity of diesel fuel burned in emissions units B008, B010, B015, and B016 (Emergency Diesel Generators 1, 2, 3, 4 and 5) combined shall not exceed 7299 gallons based on a rolling 12-month summation of fuel usage. To ensure enforceability of this provision during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following diesel fuel usage limitations:

CALENDAR MONTHS FOLLOWING PTI ISSUANCE	ALLOWABLE CUMULATIVE TOTAL VOLUME of DIESEL FUEL FOR B008, B010, B015-16 COMBINED (gallons)
1-1	608
1-2	1216
1-3	1824
1-4	2432
1-5	3040
1-6	3648
1-7	4256

1-8	4864
1-9	5472
1-10	6080
1-11	6688
1-12	7299

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall properly install, calibrate, maintain, and operate a natural gas flow meter on the individual natural gas supply line of this emissions unit to allow for accurate determination of the natural gas fuel consumption.

2. The permittee shall monitor and record the following information for these emissions units on a monthly basis:

   a. the total amount of diesel fuel used in gallons per month in emissions units B008, B010, B015 and B016 combined;

   b. the total amount of NOx emitted per month from emissions units B008, B010, B015, and B016 combined;

   c. after the first twelve months following start-up, the total amount of diesel fuel used based on a rolling 12 month summation in gallons/year in emissions units B008, B010, B015 and B016 combined;

   d. after the first twelve months following start-up, the total amount of NOx emitted per year based on a rolling 12 month summation from emissions units B008, B010, B015, and B016 combined.

3. 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 lb(s) per MmBtu.

4. The permittee shall collect or require the oil supplier to collect a representative grab sample for each shipment of oil that is received for burning in this emissions unit. The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with the following ASTM methods:

   a. ASTM method D4294, ASTM method D240, or ASTM method 6010 for sulfur content; and

   b. ASTM method D240 for heat content.

Alternative equivalent methods may be used upon written approval by the Northeast District Office of the Ohio EPA.

5. For each day during which the permittee burns a fuel other than diesel fuel oil in this emissions unit, the permittee shall maintain a record of the type and quantity of the alternative fuel burned in this emissions unit.

IV. Reporting Requirements

1. All reports shall be submitted as required in Section A.1.c. of the General Terms and Conditions of this Permit to Install unless otherwise stated.

2. The permittee shall submit quarterly deviation (excursion) reports that identify any record showing an exceedance of the rolling monthly summation limit of fuel usage in emissions units B008, B010, B015 and B016 combined as described in the table of Part A.II.2. of these terms and conditions.

3. The permittee shall submit quarterly deviation (excursion) reports that identify any record (calculation) showing an exceedance of the 0.5 lb sulfur dioxide limit per million BTU of heat input limitation. The notification shall include a copy of any such record and shall be sent to the Northeast District Office of the Ohio EPA, as required in Section A.1.c. of the General Terms and Conditions of this permit.

4. The permittee shall submit quarterly deviation (excursion) reports that identify each day a fuel other than diesel fuel oil is used in this emissions unit.

V. Testing Requirements

1. Compliance with the emission limitations specified in Section A.I of this permit shall be determined in accordance with the following methods:

   a. Emission Limitation:

      0.310 lb/mmBtu particulate emissions from each generator

      Applicable Compliance Method:

      Compliance with this emission limitation for generator 1 (4.88 mmBtu/hr) and generator 2 (7.04 mmBtu/hr) shall be demonstrated by the emission factor found in " Compilation of Air Pollutant Emission Factors", Table 3.3-1 (10/96) for diesel (0.31 lb PM/MmBtu).

      If required, the permittee shall demonstrate compliance with this emissions limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5 and the procedures specified in OAC rule 3745-17-03(B)(10).

   b. Emission Limitation:

0.5 pound of sulfur dioxide per MmBtu per generator of actual heat input

Applicable Compliance Method:

Compliance shall be based on the records required by Section A.III.3. of this permit. The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)(2) as follows:

$$ER = 1 \times 10^6 / H \quad x \quad D \quad x \quad S \quad x \quad 1.974$$

where ER = the emission rate in lbs of sulfur dioxide per MmBtu;
H = the heat content of the liquid fuel in BTU per gallon;
D= the density of the liquid fuel in pounds per gallon; and
S = the decimal fraction of sulfur in the liquid fuel.

c. Emission Limitation:

NOx emissions from this generator shall not exceed 36.03 pounds per hour and 1.6 tons from emissions units B008, B010, B015 and B016, combined based on a rolling, 12-month summation.

Applicable Compliance Method:

Compliance shall be demonstrated by multiplying the maximum rated heat input of the generator(11.26 mmBtu/hr) by the emission factor from "Compilation of Air Pollutant Emission Factors" (AP-42), Table 3.4-1(10/96) for NOx (3.2 lbs/MmBtu) and the record keeping and monitoring requirements of Part A.III.2 and the table in Part A.II.2 of these terms and conditions.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A Methods 1-4 and Method 7 and the requirements of OAC rule 3745-31-05.

d. Emission Limitation:

Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average.

Applicable Compliance Method:

If required, compliance shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60 Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

VI. Miscellaneous Requirements

none

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B010 - Emergency Generator # 3 (11.2 mmBtu/hr)	none	none

2. Additional Terms and Conditions

2.a none

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B015 - Emergency Generator #4 (11.73 mmBtu/hr)	OAC rule 3745-31-05(A)(3)(3)	Oxides of nitrogen (NOx) emissions from this emissions unit shall not exceed 37.54 pounds per hour. The requirements of this rule also include compliance with OAC rules 3745-31-05(D), 3745-17-07, 3745-17-11, 3745-18-06, and 3745-23-06.
	OAC rule 3745-31-05(D)	Combined NOx emissions from emissions units B008, B010, B015 and B016 shall not exceed 1.6 tons per year based on a rolling 12-month summation.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(5)(a)	Particulate emissions from this generator shall not exceed 0.310 lb/mmBtu. (See A.I.2.a below.)
	OAC rule 3745-18-06(G)	Sulfur dioxide emissions from this generator shall not exceed 0.5 pound of sulfur dioxide per mmBtu of actual heat input.
	OAC rule 3745-23-06(B)	See A.I.2.c below.

2. Additional Terms and Conditions

2.a The emission limitation specified in this rule citation has been revised based upon a change in the applicable emission factor contained in USEPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors. The revised rule was adopted by the Director of Ohio EPA in December, 1997. The USEPA has agreed to consider this revised rule as federally enforceable during the time from the effective date of USEPA approval of this limitation as a revision to the Ohio SIP for particulate matter.

2.b Compliance with the "latest available control techniques and operating practices" requirements as described in OAC rule 3745-23-06 shall include compliance with the emission limitation established pursuant to OAC rule 3745-31-05(D).

2.c The diesel fuel oil burned in this unit, shall have a sulfur content which is sufficient to comply with the allowable sulfur dioxide emission limitation of 0.5 pound of sulfur dioxide per MmBtu of actual heat input, on an "as received" basis.

II. Operational Restrictions

1. The maximum quantity of diesel fuel burned in emissions units B008, B010, B015, and B016 (Emergency Diesel Generators 1, 2, 3, 4 and 5) combined shall not exceed 7,299 gallons based on a rolling 12-month summation of fuel usage. To ensure enforceability of this provision during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following diesel fuel usage limitations:

CALENDAR MONTHS FOLLOWING PTI ISSUANCE	ALLOWABLE CUMULATIVE TOTAL VOLUME of DIESEL FUEL FOR B008, B010, B015-16 COMBINED (gallons)
1-1	608
1-2	1216
1-3	1824
1-4	2432
1-5	3040
1-6	3648
1-7	4256
1-8	4864
1-9	5472
1-10	6080
1-11	6688
1-12	7299

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall properly install, calibrate, maintain, and operate a natural gas flow meter on the individual natural gas supply line of this emissions unit to allow for accurate determination of the natural gas fuel consumption.

2. The permittee shall monitor and record the following information for these emissions units on a monthly basis:

   a. the total amount of diesel fuel used in gallons per month in emissions units B008, B010, B015 and B016 combined;

   b. the total amount of NOx emitted per month from emissions units B008, B010, B015, and B016 combined;

   c. after the first twelve months following effective date of this Permit to Install, the total amount of diesel fuel used based on a rolling 12 month summation in gallons/year in emissions units B008, B010, B015 and B016 combined;

   d. after the first twelve months following effective date of this Permit to Install, the total amount of NOx emitted per year based on a rolling 12 month summation from emissions units B008, B010, B015, and B016 combined.

3. 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 lb(s) per MmBtu.

4. The permittee shall collect or require the oil supplier to collect a representative grab sample for each shipment of oil that is received for burning in this emissions unit. The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with the following ASTM methods:

   a. ASTM method D4294, ASTM method D240, or ASTM method 6010 for sulfur content; and

   b. ASTM method D240 for heat content.

   Alternative equivalent methods may be used upon written approval by the Northeast District Office of the Ohio EPA.

5. For each day during which the permittee burns a fuel other than diesel fuel oil in this emissions unit, the permittee shall maintain a record of the type and quantity of the alternative fuel burned in this emissions unit.

IV. Reporting Requirements

1. All reports shall be submitted to the Northeast District Office of the Ohio EPA as required in Section A.1.c. of the General Terms and Conditions of this Permit to Install unless otherwise stated.

2. The permittee shall submit quarterly deviation (excursion) reports that identify any record showing an exceedance of the rolling monthly summation limit of fuel usage in emissions units B008, B010, B015 and B016 combined as described in the table of Part A.II.2. of these terms and conditions.

3. The permittee shall submit quarterly deviation (excursion) reports that identify any record (calculation) showing an exceedance of the 0.5 lb sulfur dioxide limit per million BTU of heat input limitation. The notification shall include a copy of any such record and shall be sent to the Northeast District Office of the Ohio EPA, as required in Section A.1.c. of the General Terms and Conditions of this permit.

4. The permittee shall submit quarterly deviation (excursion) reports that identify each day a fuel other than diesel fuel oil is used in this emissions unit.

V. Testing Requirements

1. Compliance with the emission limitations specified in Section A.I of this permit shall be determined in accordance with the following methods:

   a. Emission Limitation:

      0.310 lb/mmBtu particulate emissions from each generator

      Applicable Compliance Method:

      Compliance with this emission limitation for generator 1 (4.88 mmBtu/hr) and generator 2 (7.04 mmBtu/hr) shall be demonstrated by the emission factor found in " Compilation of Air Pollutant Emission Factors", Table 3.3-1 (10/96) for diesel (0.31 lb PM/MmBtu).

      If required, the permittee shall demonstrate compliance with this emissions limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5 and the procedures specified in OAC rule 3745-17-03(B)(10).

   b. Emission Limitation:

      0.5 pound of sulfur dioxide per MmBtu per generator of actual heat input

      Applicable Compliance Method:

      Compliance shall be based on the records required by Section A.III.3. of this permit. The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)(2) as follows:

      $ER = 1 \times 10^6 / H \times D \times S \times 1.974$

      where ER = the emission rate in lbs of sulfur dioxide per MmBtu;
      H = the heat content of the liquid fuel in BTU per gallon;

D= the density of the liquid fuel in pounds per gallon; and
S = the decimal fraction of sulfur in the liquid fuel.

c. Emission Limitation:

NOx emissions from this emissions unit shall not exceed 37.54 pounds per hour and 1.6 tons per year of NOx based on a rolling annual summation of all 4 emissions units (B008, B010, B015 and B016) combined.

Applicable Compliance Method:

Compliance shall be demonstrated by multiplying the maximum rated heat input of the generator(11.73 mmBtu/hr) by the emission factor from "Compilation of Air Pollutant Emission Factors" (AP-42), Table 3.4-1(10/96) for NOx (3.2 lbs/MmBtu) and the record keeping and monitoring requirements of Part A.III.2 and the table in Part A.II.2 of these terms and conditions.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A Methods 1-4 and Method 7 and the requirements of OAC rule 3745-31-05.

d. Emission Limitation:

Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average.

Applicable Compliance Method:

If required, compliance shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60 Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

VI. Miscellaneous Requirements

none

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B015 - Emergency Generator #4		

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B016 - Emergency Generator #5 (11.73 mmBtu/hr)	OAC rule 3745-31-05(A)(3)	Oxides of nitrogen (NOx) emissions from this emissions unit shall not exceed 37.54 pounds per hour. The requirements of this rule also include compliance with OAC rules 3745-31-05(D), 3745-17-07, 3745-17-11, 3745-18-06, and 3745-23-06.
	OAC rule 3745-31-05(D)	Combined NOx emissions from emissions units B008, B010, B015 and B016 shall not exceed 1.6 tons per year based on a rolling annual summation.
	OAC rule 3745-17-11(B)(5)(a)	Particulate emissions from this emissions unit shall not exceed 0.310 lb/mmBtu. (See A.I.2.a below.)
	OAC rule 3745-18-06(G)	Sulfur dioxide emissions from this generator shall not exceed 0.5 pound of sulfur dioxide per MmBtu of actual heat input.
	OAC rule 3745-23-06(B)	See A.I.2.c below.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% percent opacity, as a six-minute average, except as provided by rule.

2. Additional Terms and Conditions

2.a The emission limitation specified in this rule citation has been revised based upon a change in the applicable emission factor contained in USEPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors. The revised rule was adopted by the Director of Ohio EPA in December, 1997. The USEPA has agreed to consider this revised rule as federally enforceable during the time from the effective date of USEPA approval of this limitation as a revision to the Ohio SIP for particulate matter.

2.b Compliance with the "latest available control techniques and operating practices" requirements as described in OAC rule 3745-23-06 shall include compliance with the emission limitation established pursuant to OAC rule 3745-31-05(D).

2.c The diesel fuel oil burned in this unit, shall have a sulfur content which is sufficient to comply with the allowable sulfur dioxide emission limitation of 0.5 pound of sulfur dioxide per mmBtu of actual heat input, on an "as received" basis.

II. Operational Restrictions

1. The permittee shall burn only diesel fuel oil in this emissions unit.

2. The maximum quantity of diesel fuel burned in emissions units B008, B010, B015, and B016 (Emergency Diesel Generators 1, 2, 3, 4 and 5) combined shall not exceed 7,299 gallons based on a rolling 12-month summation of fuel usage. To ensure enforceability of this provision during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following diesel fuel usage limitations:

CALENDAR MONTHS FOLLOWING PTI ISSUANCE (months)	ALLOWABLE CUMULATIVE TOTAL VOLUME of DIESEL FUEL FOR B008, B010, B015-16 COMBINED (gallons)
1-1	608
1-2	1216
1-3	1824
1-4	2432
1-5	3040
1-6	3648
1-7	4256
1-8	4864
1-9	5472
1-10	6080
1-11	6688
1-12	7299

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall properly install, calibrate, maintain, and operate a natural gas flow meter on the individual natural gas supply line of this emissions unit to allow for accurate determination of the natural gas fuel consumption.

2. The permittee shall monitor and record the following information for these emissions units on a monthly basis:

   a. the total amount of diesel fuel used in gallons per month in emissions units B008, B010, B015 and B016 combined;

   b. the total amount of NOx emitted per month from emissions units B008, B010, B015, and B016 combined;

   c. after the first twelve months following the effective date of this Permit to Install, the total amount of diesel fuel used based on a rolling 12 month summation in gallons/year in emissions units B008, B010, B015 and B016 combined;

   d. after the first twelve months following the effective date of this permit to install, the total amount of NOx emitted per year based on a rolling 12 month summation from emissions units B008, B010, B015, and B016 combined.

3. 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 lb(s) per MmBtu.

4. The permittee shall collect or require the oil supplier to collect a representative grab sample for each shipment of oil that is received for burning in this emissions unit. The permittee shall perform or require the supplier to perform the analyses for sulfur content and heat content in accordance with the following ASTM methods:

   a. ASTM method D4294, ASTM method D240, or ASTM method 6010 for sulfur content; and

   b. ASTM method D240 for heat content.

   Alternative equivalent methods may be used upon written approval by the Northeast District Office of the Ohio EPA.

5. For each day during which the permittee burns a fuel other than diesel fuel oil in this emissions unit, the permittee shall maintain a record of the type and quantity of the alternative fuel burned in this emissions unit.

IV. Reporting Requirements

1. All reports shall be submitted as required in Section A.1.c. of the General Terms and Conditions of this Permit to Install unless otherwise stated.

2. The permittee shall submit quarterly deviation (excursion) reports that identify any record showing an exceedance of the rolling monthly summation limit of fuel usage in emissions units B008, B010, B015 and B016 combined as described in the table of Part A.II.2. of these terms and conditions.

3. The permittee shall submit quarterly deviation (excursion) reports that identify any record (calculation) showing an exceedance of the 0.5 lb sulfur dioxide limit per million BTU of heat input limitation. The notification shall include a copy of any such record and shall be sent to the Northeast District Office of the Ohio EPA, as required in Section A.1.c. of the General Terms and Conditions of this permit.

4. The permittee shall submit quarterly deviation (excursion) reports that identify each day a fuel other than diesel fuel oil is used in this emissions unit.

V. Testing Requirements

1. Compliance with the emission limitations specified in Section A.I of this permit shall be determined in accordance with the following methods:

   a. Emission Limitation:

      0.310 lb/mmBtu particulate emissions from each generator

      Applicable Compliance Method:

      Compliance with this emission limitation for generator 1 (4.88 mmBtu/hr) and generator 2 (7.04 mmBtu/hr) shall be demonstrated by the emission factor found in " Compilation of Air Pollutant Emission Factors", Table 3.3-1 (10/96) for diesel (0.31 lb PM/mmBtu).

      If required, the permittee shall demonstrate compliance with this emissions limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1 through 5 and the procedures specified in OAC rule 3745-17-03(B)(10).

   b. Emission Limitation:

      0.5 pound of sulfur dioxide per mmBtu per generator of actual heat input

      Applicable Compliance Method:

      Compliance shall be based on the records required by Section A.III.3. of this permit. The sulfur dioxide emission rate shall be calculated in accordance with the formula specified in OAC rule 3745-18-04(F)(2) as follows:

      $ER = 1 \times 10^6 / H \times D \times S \times 1.974$

where ER = the emission rate in lbs of sulfur dioxide per mmBtu;
H = the heat content of the liquid fuel in BTU per gallon;
D= the density of the liquid fuel in pounds per gallon; and
S = the decimal fraction of sulfur in the liquid fuel.

d. Emission Limitation:

NOx emissions from this emissions unit shall not exceed 37.54 pounds per hour and 1.6 tons per year of NOx based on a rolling annual summation of all 4 emissions units (B008, B010, B015 and B016) combined.

Applicable Compliance Method:

Compliance shall be demonstrated by multiplying the maximum rated heat input of the generator(11.73 mmBtu/hr) by the emission factor from "Compilation of Air Pollutant Emission Factors" (AP-42), Table 3.4-1(10/96) for NOx (3.2 lbs/mmBtu) and the record keeping and monitoring requirements of Part A.III.2 and the table in Part A.II.2 of these terms and conditions.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Appendix A Methods 1-4 and Method 7 and the requirements of OAC rule 3745-31-05.

5. Emission Limitation:

Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% opacity, as a six-minute average.

Applicable Compliance Method:

If required, compliance shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60 Appendix A, Method 9 and the procedures specified in OAC rule 3745-17-03(B)(1).

VI. Miscellaneous Requirements

none

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
B016 - Emergency Generator #5		

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P025 - Large diameter lathe number 16 (natural gas fired) 1.26 MmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit. (The 15.23 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year. The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity,

	as a six- minute average, except as provided by rule.
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)	See A.I.2.a.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in This permit to install02-13174.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this permit to install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

   After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

b. describe any corrective actions taken to eliminate the visible particulate emissions.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

a. Emission Limitation

Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

Applicable Compliance Method

If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P025 - Lathe 16 (1.26 mmBtu/hr)	none	none

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
Electric Crucible machine # 6, equipped with a primary baghouse, and sand feed systems, equipped with a primary baghouse, a secondary baghouse, including vacuum pumps, each with a mist eliminator, and the blockhouse vent. (P026)	OAC rule 3745-31-05(A)(3)	Nitrogen oxides (NOx) emissions from this emissions unit shall not exceed 19.48 pounds per hour. (The 19.48 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) See A.I.2.e. and A.I.2.f. The total particulate emissions from this emissions unit (P026) alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 7.1 tons per year. Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average. Reasonably available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust shall be employed for this emissions unit. (See A.I.2.a.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-21-08, and 3745-23-06(B).

OAC rule 3745-31-05(D)	The combined NOx emissions from emissions units P026 and P031, shall not exceed 31.8 tons per rolling, 12-month period.
OAC rule 3745-17-07(A)	Visible particulate emissions from each stack serving this emissions unit, shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule. See A.I.2.c.
OAC rule 3745-17-08(B)	
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit from all the stacks serving or associated with this emissions unit, shall not exceed 1.62 pounds per hour based on Table I of OAC rule 3745-17-11(with a maximum process weight rate of 500 pounds per hour). See Section A.I.2.f. See A.I.2.b
OAC rule 3745-21-08	
OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a The permittee shall minimize or eliminate visible emissions of fugitive dust through the employment of reasonably available control measures (RACM). These measures shall include, but not be limited to, the following:

i. the use of adequate hooding or equivalent capture devices for the crucible filling, arc fusion, and crucible cooling operations, for the sand storage and transfer equipment, and for the equipment used to mechanically finish quartz crucibles and tubing including, but not limited to saws, sanders, bevelers, trimmers and grinders; and

ii. all fugitive dust captured shall be vented to the baghouses.

By employing RACM, visible emissions of fugitive dust from any non-stack egress points from the building shall be minimized.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c This facility is not located in an Appendix A area; therefore, in accordance with OAC rule 3745-17-08(A)(1), OAC rule 3745-17-08(B) is not applicable to this emissions unit.

2.d It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx may not be captured and vented to the stacks. The NOx emissions from the cooling of the crucible machines shall be vented to the stacks.

2.e The maximum rate of NOx emissions from CM6 and CM7 (P026 and P031) combined shall not exceed 31.8 tons per year, based on rolling, 12-month summations of the monthly emissions.

The production rate of variable size crucibles, for both crucible machines numbers 6 and 7, combined (emissions units P026 and P031), shall be restricted such that the sum of the emissions from the production of all sizes of crucibles is less than the allowable NOx emission rate. The emission rate for each size of crucible shall be based on the following equation:

[number of crucibles produced of a particular size] x [the emission factor for that size from the most recent stack test] = NOx emissions

The following are the current NOx emission factors provided on page 63 of 59 of the addendum to this Permit to Install application received at Ohio EPA on February 5, 2002:

12 inch crucibles(510/520)	0.63	pound/crucible
12 inch crucibles(530)	0.99	pound/crucible
14 inch crucibles(510/520)	1.65	pounds/crucible
14 inch crucibles(530)	2.19	pounds/crucible
16 inch crucibles(510/520)	2.57	pounds/crucible
16 inch crucibles(530)	2.12	pounds/crucible

18 inch crucibles	2.85	pounds/crucible

To ensure enforceability of this provision during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following cumulative NOx emission limitations:

MONTHS	TOTAL ALLOWABLE, CUMULATIVE NOx EMISSIONS (TPY) (P026 & P031, combined)
1-1	2.64
1-2	5.28
1-3	7.92
1-4	10.56
1-5	12.12
1-6	15.84
1-7	18.48
1-8	21.12
1-9	23.76
1-10	26.4
1-11	29.04
1-12	31.8

After the first twelve calendar months of operation following the effective date of this Permit to Install, compliance with the NOx combined emissions limitation of 31.8 tons per year, shall be based upon rolling, twelve-month summations of the NOx emission rates.

2.f The maximum rate of particulate emissions (PE) shall not exceed 1.62 pounds per hour, based on daily emissions and operating hours.

The production rate of the crucibles shall be restricted such that total emissions from all emission points are no greater than the allowable particulate emission rate. For emissions from the blockhouse stack (F), the emission rate for each size of crucible shall be based on the following equation:

[number of crucibles produced of a particular size] x [the emission factor for that size from the most recent stack test] = PE

The following are the current PE factors provided in this Permit to Install:

12 inch and 14 inch crucibles: all types	0.171 pound/crucible
16 inch crucibles: all types	0.232 pound/crucible
18 inch crucibles	0.366 pound/crucible

PE from the other stacks or vents for this emissions unit shall be assumed equal to the maximum controlled emissions, based on the application for this Permit to Install, , and as shown in Section V.1.c of these terms and conditions.

II Operational Restrictions

1. The pressure drop, for each of the baghouses, while the emissions unit is in operation, shall be maintained within the range that was established during the most recent emission test that demonstrated the emissions unit was in compliance.

   The permittee may petition the Northeast District Office of the Ohio EPA for reestablishment of the pressure drop range at any time provided the permittee can demonstrate that the operating conditions upon which the pressure drop range was previously established are no longer applicable.

   This term shall not be effective until 30 days after the permittee receives the results of the emissions testing required in Section V of this permit.

2. The permittee shall produce only one size (diameter) of crucible each hour. Changeover from production of crucibles of one size to a different size shall be conducted such that production of the second size crucible begins in a different hour than production of the first size ended.

3. Crucible production for each hour from this emissions unit shall not exceed the following:

Crucible Size	Maximum Production (crucibles/hour)
12 inch and 14 inch crucibles: all types	8.5 *
16 inch crucibles: all types	6.5*
18 inch crucibles	4

   * Production of a crucible may begin in one hour and end in the next hour.

III Monitoring and/or Recordkeeping

1. The permittee shall perform weekly checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible fugitive particulate emissions from the building egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operation log. If visible emissions are observed, the permittee shall also note the following in the operations log:

   a. the location(s) and color(s) of the emissions;

   b. whether the emissions are representative of normal conditions;

c. if the emissions are not representative of normal operations, the cause(s) of the abnormal emissions;

d. the total duration of any visible emission incident; and

e. any corrective actions taken to eliminate the visible emissions.

2. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Not withstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions unit from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.2.

The permittee shall revert to daily readings if any visible emissions are observed.

3. The permittee shall properly operate and maintain equipment to monitor the pressure drop across each baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across each baghouse on a daily basis.

4. The permittee shall maintain monthly records of the following information for emissions units P026 and P031:

a. the number of crucibles of each size produced;

b. the NOx emission factor for each size of crucible produced;

c. the total NOx emissions from all crucibles produced, in pounds and tons;

d. during the first 12 calendar months of operation following the effective date of this Permit to Install, the cumulative NOx emissions, in tons; and

e. beginning after the first 12 calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month summation of the NOx emissions, in tons.

5. The permittee shall maintain daily records of the following information for this emissions unit:

a. the number of crucibles of each size produced;

b. the hours of operation; and

c. the average hourly particulate emission rate, in pounds per hour.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

a. identify all days during which any visible fugitive particulate emissions were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and

b. describe any corrective actions taken to eliminate the visible fugitive particulate emissions.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit semiannual written reports that:

a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

b. describe any corrective actions taken to eliminate the visible particulate emissions.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit pressure drop deviation (excursion) reports that identify all periods of time during which the pressure drop across each of the baghouses did not comply with the allowable ranges specified above.

4. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

a. for the first 12 calendar months of operation following the effective date of this Permit to Install, the allowable, monthly, cumulative NOx emission limitation for emissions units P026 and P031, combined; and

b. after the first 12 calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month NOx emission limitation for emissions units P026 and P031, combined.

5. The permittee shall submit annual reports that summarize the the total annual emissions of NOx from this emissions unit.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by April 15 of each year and shall cover the previous 12-month period.

6. The permittee shall submit quarterly deviation (excursion) reports that identify any exceedances of the hourly particulate emission limitation.

V Testing Requirements

1. Compliance with the emissions limitations in Section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

   a. Emission Limitation

      Visible particulate emissions from each stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

   b. Emission Limitation

      Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 (ten) percent opacity, as a 3-minute average.

      Applicable Compliance Method

      If required by Ohio EPA, compliance with the above visible emission limitation shall be determined using Method 9 of 40 CFR, Part 60, Appendix A.

c. Emission Limitation

The total particulate emissions attributable to this emissions unit, that are released through stacks or vents, shall not exceed 1.62 pounds per hour based on Table I of OAC rule 3745-17-11 and a maximum process weight (PWR) of 500 pounds per hour, and 7.1 tons per year particulate emissions.

Applicable Compliance Method

Compliance with the particulate limits above, shall be determined in accordance with the following:

If required, emission testing shall be performed for each stack and baghouse outlet to demonstrate compliance with the allowable hourly mass emission rate.

The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rate:

Methods 1-5 of 40 CFR Part 60, Appendix A.

Performance testing shall be conducted in accordance with OAC rule 3745-17-03(B)(10).

Because the allowable annual mass emission rate was established by multiplying the short-term limit of 1.62 lbs per hour of particulate emissions by 8760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed providing that compliance with the short-term limit is maintained.

In addition, compliance with the hourly PE limitation may be determined as follows:

pounds per hour PE = L + F + C + V

where:

L = the maximum emissions, in pound per hour, from sand loading into crucible pots
= 498 lbs/hr x 0.116 lb/ton x 0.01 x 1 ton/2000 lbs

F = emissions, in pound per hour, from crucible forming through electric arc fusion, based on the record keeping in Section III.4 and the following formula:

[number of crucibles produced of a particular size] x [the emission factor for that size from the most recent stack test]

C = the maximum emissions, in pound per hour, from crucible cooling after fusion
= 498 lbs/hr x 0.116 lb/ton x 0.01 x 1 ton/2000 lbs

V = the maximum emissions, in pound per hour, from vacuum pumps

= 2 x 0.05 lb/hr

The emission factor of 0.116 lb/ton for sand transfer was derived based on information provided in AP-42, 5th edition, Volume I, Chapter 11, Mineral Products Industry, Table 11.12-2, January 1995.

d. Emission Limitation

The allowable hourly NOx emission rate is 19.48 pounds per hour.

Applicable Compliance Method

Compliance with the hourly emission rate shall be demonstrated by the record keeping in A.III.4. and by emission testing using the following test methods:

Methods 1-4 and 7 of 40 CFR Part 60, Appendix A "Determination of Nitrogen Oxides Emissions from Stationary Sources".

The permittee shall calculate the rolling, 12-month NOx emissions in accordance with the equation specified in Part A.III.4 of these terms and conditions.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equation in Section A.I.2.e. and record keeping in Section A.III.4 of these terms and conditions and results summed with the total annual and rolling NOx emissions from all production and bench lathes.

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e. Emission Limitation

NOx emissions from CM6 and CM7 (P026 and P031) combined shall not exceed 31.8 tons per year, based on rolling, 12-month summations of the monthly emissions.

Applicable Compliance Method

Compliance with the above limitation shall be demonstrated by the record keeping in A.III.4 of these terms and conditions.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equation in Section A.I.2.e. and record keeping in Section A.III.4 of these terms and conditions and results summed with the total annual and rolling NOx emissions from P026 and P031.

2.a Emission Testing Requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. The emission testing shall be conducted within 12 months after the effective date of this Permit to Install.

ii. The emission testing shall be conducted for each uncontrolled stack and each baghouse outlet and shall be conducted to demonstrate compliance with the allowable hourly mass emission rate for particulate emissions, the allowable hourly mass emission rate for NOx emissions, and to determine the NOx emission factors for crucible production. For the purposes of emission testing, the auxiliary blockhouse vent and vacuum pumps emissions shall be included in the compliance determination.

iii. The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rates for particulate emissions and NOx and to determine emission factors for NOx:

Methods 1-5 and 7 of 40 CFR Part 60, Appendix A.

iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, with respect to arc strength in kw-hr and the surface area of the crucibles, unless otherwise specified or approved by the Northeast District Office of the Ohio EPA.

2.b Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emission test(s).

2.c Personnel from the Northeast District Office of the Ohio EPA and local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

2.d A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
Electric Crucible Machine # 6 equipped with a Torit primary baghouse, and sand feed systems equipped with a Fabrimax-Filter primary baghouse, a Spencer-Filter secondary baghouse, and a mist eliminator**,** also including the auxiliary blockhouse vent and vacuum pumps (P026).		

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
Electric Crucible machine # 7, equipped with a primary baghouse, and sand feed systems, equipped with a primary baghouse, a secondary baghouse, including vacuum pumps, each with a mist eliminator, and the blockhouse vent. (P031)	OAC rule 3745-31-05(A)(3)	Nitrogen oxides (NOx) emissions from this emissions unit shall not exceed 19.48 pounds per hour. (The 19.48 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) See A.I.2.e. and A.I.2.f. The total particulate emissions from this emissions unit (P031) alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 7.1 tons per year. Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average. Reasonably available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust shall be employed for this emissions unit. (See A.I.2.a.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-31-

	05(D), 3745-17-11(B), 3745-21-08, and 3745-23-06(B).
OAC rule 3745-31-05(D)	The combined NOx emissions from emissions units P026 and P031, shall not exceed 31.8 tons per rolling, 12-month period.
OAC rule 3745-17-07(A)	Visible particulate emissions from each stack serving this emissions unit, shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-17-08(B)	See A.I.2.c.
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 1.62 pounds per hour based on Table I of OAC rule 3745-17-11(with a maximum process weight rate of 500 pounds per hour). See Section A.I.2.f.
OAC rule 3745-21-08	See A.I.2.b
OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a The permittee shall minimize or eliminate visible emissions of fugitive dust through the employment of reasonably available control measures (RACM). These measures shall include, but not be limited to, the following:

i. the use of adequate hooding or equivalent capture devices for the crucible filling, arc fusion, and crucible cooling operations, for the sand storage and transfer equipment, and for the equipment used to mechanically finish quartz crucibles and tubing including, but not limited to saws, sanders, bevelers, trimmers and grinders; and

ii. all fugitive dust captured shall be vented to the baghouses.

By employing RACM, visible emissions of fugitive dust from any non-stack egress points from the building shall be minimized.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c This facility is not located in an Appendix A area; therefore, in accordance with OAC rule 3745-17-08(A)(1), OAC rule 3745-17-08(B) is not applicable to this emissions unit.

2.d It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx may not be captured and vented to the stacks. The NOx emissions from the cooling of the crucible machines shall be vented to the stacks.

2.e The maximum rate of NOx emissions from CM6 and CM7 (P026 and P031) combined shall not exceed 31.8 tons per year, based on rolling, 12-month summations of the monthly emissions.

The production rate of variable size crucibles, for both crucible machines numbers 6 and 7, combined (emissions units P026 and P031), shall be restricted such that the sum of the emissions from the production of all sizes of crucibles is less than the allowable NOx emission rate. The emission rate for each size of crucible shall be based on the following equation:

[number of crucibles produced of a particular size] x [the emission factor for that size from the most recent stack test] = NOx emissions

The following are the current NOx emission factors provided on page 63 of 59 of the addendum to the this Permit to Install application received at Ohio EPA on February 5, 2002:

12 inch crucibles(510/520)	0.63	pound/crucible
12 inch crucibles(530)	0.99	pound/crucible
14 inch crucibles(510/520)	1.65	pounds/crucible
14 inch crucibles(530)	2.19	pounds/crucible

16 inch crucibles(510/520)	2.57	pounds/crucible
16 inch crucibles(530)	2.12	pounds/crucible
18 inch crucibles	2.85	pounds/crucible

To ensure enforceability of this provision during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following cumulative NOx emission limitations:

MONTHS	TOTAL ALLOWABLE, CUMULATIVE NOx EMISSIONS (TPY) (P026 & P031, combined)
1-1	2.64
1-2	5.28
1-3	7.92
1-4	10.56
1-5	12.12
1-6	15.84
1-7	18.48
1-8	21.12
1-9	23.76
1-10	26.4
1-11	29.04
1-12	31.8

After the first twelve calendar months of operation following the effective date of this Permit to Install, compliance with the NOx combined emissions limitation of 31.8 tons per year, shall be based upon rolling, twelve-month summations of the NOx emission rates.

2.f The maximum rate of particulate emissions (PE) shall not exceed 1.62 pounds per hour, based on daily emissions and operating hours.

The production rate of the crucibles shall be restricted such that total emissions from all emission points are no greater than the allowable particulate emission rate. For emissions from the blockhouse stack (F), the emission rate for each size of crucible shall be based on the following equation:

[number of crucibles produced of a particular size] x [the emission factor for that size from the most recent stack test] = PE

The following are the current PE factors provided in this Permit to Install:

12 inch and 14 inch crucibles: all types	0.171 pound/crucible
16 inch crucibles: all types	0.232 pound/crucible
18 inch crucibles	0.366 pound/crucible

PE from the other stacks or vents for this emissions unit shall be assumed equal to the maximum controlled emissions, based on the application for this Permit to Install, and as shown in Section V.1.c of these terms and conditions.

II Operational Restrictions

1. The pressure drop, for each of the baghouses, while the emissions unit is in operation, shall be maintained within the range that was established during the most recent emission test that demonstrated the emissions unit was in compliance.

   The permittee may petition the Northeast District Office of the Ohio EPA for reestablishment of the pressure drop range at any time provided the permittee can demonstrate that the operating conditions upon which the pressure drop range was previously established are no longer applicable.

   This term shall not be effective until 30 days after the permittee receives the results of the emissions testing required in Section V of this permit.

2. The permittee shall produce only one size (diameter) of crucible each hour. Changeover from production of crucibles of one size to a different size shall be conducted such that production of the second size crucible begins in a different hour than production of the first size ended.

3. Crucible production for each hour from this emissions unit shall not exceed the following:

Crucible Size	Maximum Production (crucibles/hour)
12 inch and 14 inch crucibles: all types	8.5 *
16 inch crucibles: all types	6.5*
18 inch crucibles	4

   * Production of a crucible may begin in one hour and end in the next hour.

III Monitoring and/or Recordkeeping

1. The permittee shall perform weekly checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible fugitive particulate emissions from the building egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit. The presence or absence of any visible emissions

shall be noted in an operation log. If visible emissions are observed, the permittee shall also note the following in the operations log:

a. the location(s) and color(s) of the emissions;

b. whether the emissions are representative of normal conditions;

c. if the emissions are not representative of normal operations, the cause(s) of the abnormal emissions;

d. the total duration of any visible emission incident; and

e. any corrective actions taken to eliminate the visible emissions.

2. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions unit from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.2.

The permittee shall revert to daily readings if any visible emissions are observed.

3. The permittee shall properly operate and maintain equipment to monitor the pressure drop across each baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across each baghouse on a daily basis.

4. The permittee shall maintain monthly records of the following information for emissions units P026 and P031:

   a. the number of crucibles of each size produced;

   b. the NOx emission factor for each size of crucible produced;

   c. the total NOx emissions from all crucibles produced, in pounds and tons;

   d. during the first 12 calendar months of operation following the effective date of this Permit to Install, the cumulative NOx emissions, in tons; and

   e. beginning after the first 12 calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month summation of the NOx emissions, in tons.

5. The permittee shall maintain daily records of the following information for this emissions unit:

   a. the number of crucibles of each size produced;

   b. the hours of operation; and

   c. the average hourly particulate emission rate, in pounds per hour.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible fugitive particulate emissions were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible fugitive particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

b. describe any corrective actions taken to eliminate the visible particulate emissions.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

3. The permittee shall submit pressure drop deviation (excursion) reports that identify all periods of time during which the pressure drop across each of the baghouses did not comply with the allowable ranges specified above.

4. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. for the first 12 calendar months of operation following the effective date of this Permit to Install, the allowable, monthly, cumulative NOx emission limitation for emissions units P026 and P031, combined; and

   b. after the first 12 calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month NOx emission limitation for emissions units P026 and P031, combined.

5. The permittee shall submit annual reports that summarize the the total annual emissions of NOx from this emissions unit.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by April 15 of each year and shall cover the previous 12-month period.

6. The permittee shall submit quarterly deviation (excursion) reports that identify any exceedances of the hourly particulate emission limitation.

V Testing Requirements

1. Compliance with the emissions limitations in Section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

   a. Emission Limitation

      Visible particulate emissions from each stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

   b. Emission Limitation

Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 (ten) percent opacity, as a 3-minute average.

Applicable Compliance Method

If required by Ohio EPA, compliance with the above visible emission limitation shall be determined using Method 9 of 40 CFR, Part 60, Appendix A.

c. Emission Limitation

The total particulate emissions attributable to this emissions unit, that are released through stacks or vents, shall not exceed 1.62 pounds per hour based on Table I of OAC rule 3745-17-11 and a maximum process weight (PWR) of 500 pounds per hour, and 7.1 tons per year particulate emissions.

Applicable Compliance Method

Compliance with the particulate limits above, shall be determined in accordance with the following:

If required, emission testing shall be performed for each stack and baghouse outlet to demonstrate compliance with the allowable hourly mass emission rate.

The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rate:

Methods 1-5 of 40 CFR Part 60, Appendix A.

Performance testing shall be conducted in accordance with OAC rule 3745-17-03(B)(10).

Because the allowable annual mass emission rate was established by multiplying the short-term limit of 1.62 lbs per hour of particulate emissions by 8760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed providing that compliance with the short-term limit is maintained.

In addition, compliance with the hourly PE limitation may be determined as follows:

pounds per hour PE = L + F + C + V

where:

L = the maximum emissions, in pound per hour, from sand loading into crucible pots
= 498 lbs/hr x 0.116 lb/ton x 0.01 x 1 ton/2000 lbs

F = emissions, in pound per hour, from crucible forming through electric arc fusion, based on the record keeping in Section III.4 and the following formula:

[number of crucibles produced of a particular size] x [the emission factor for that size from the most recent stack test]

C = the maximum emissions, in pound per hour, from crucible cooling after fusion
= 498 lbs/hr x 0.116 lb/ton x 0.01 x 1 ton/2000 lbs

V = the maximum emissions, in pound per hour, from vacuum pumps
= 2 x 0.05 lb/hr

The emission factor of 0.116 lb/ton for sand transfer was derived based on information provided in AP-42, 5th edition, Volume I, Chapter 11, Mineral Products Industry, Table 11.12-2, January 1995.

d. Emission Limitation

The allowable hourly NOx emission rate is 19.48 pounds per hour.

Applicable Compliance Method

Compliance with the hourly emission rate shall be demonstrated by the record keeping in A.III.4. and by emission testing using the following test methods:

Methods 1-4 and 7 of 40 CFR Part 60, Appendix A "Determination of Nitrogen Oxides Emissions from Stationary Sources".

The permittee shall calculate the rolling, 12-month NOx emissions in accordance with the equation specified in Part A.III.4 of these terms and conditions.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equation in Section A.I.2.e. and record keeping in Section A.III.4 of these terms and conditions and results summed with the total annual and rolling NOx emissions from P026 and P031.

e. Emission Limitation

NOx emissions from CM6 and CM7 (P026 and P031) combined shall not exceed 31.8 tons per year, based on rolling, 12-month summations of the monthly emissions.

Applicable Compliance Method

Compliance with the above limitation shall be demonstrated by the record keeping in A.III.4 of these terms and conditions.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equation in Section A.I.2.e. and record keeping in Section A.III.4 of these terms and conditions and results summed with the total annual and rolling NOx emissions from P026 and P031.

2.a Emission Testing Requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. The emission testing shall be conducted within 12 months after the effective date of this permit to install.

ii. The emission testing shall be conducted for each uncontrolled stack and each baghouse outlet and shall be conducted to demonstrate compliance with the allowable hourly mass emission rate for particulate emissions, the allowable hourly mass emission rate for NOx emissions, and to determine the NOx emission factors for crucible production. For the purposes of emission testing, the auxiliary blockhouse vent and vacuum pumps emissions shall be included in the compliance determination.

iii. The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rates for particulate emissions and NOx and to determine emission factors for NOx:

Methods 1-5 and 7 of 40 CFR Part 60, Appendix A.

iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, with respect to arc strength in kw-hr and the surface area of the crucibles, unless otherwise specified or approved by the Northeast District Office of the Ohio EPA.

2.b Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emission test(s).

2.c Personnel from the Northeast District Office of the Ohio EPA and local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

2.d A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The

permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
Electric Crucible Machine # 7 equipped with a Torit primary baghouse, and sand feed systems equipped with a Fabrimax-Filter primary baghouse, a Spencer-Filter secondary baghouse, and a mist eliminator, also including the auxiliary blockhouse vent and vacuum pumps (P031).		

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
Electric Crucible machine # 5, with dust collector, including vacuum pumps, each with a mist eliminator, and the crucible forming enclosure vent, cutting station and cooling table (P006)	OAC rule 3745-31-05(A)(3)	Nitrogen oxides (NOx) emissions from this emissions unit shall not exceed 1.36 pounds per hour (The 1.36 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The total particulate emissions from this emissions unit alone, that are released through any stack serving or associated with this emissions unit, shall not exceed 2.4 tons per year. Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average. Reasonably available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust shall be employed for this emissions unit. (See A.I.2.a.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-31-05(D), 3745-17-11(B), 3745-21-08, and 3745-23-06(B).

OAC rule 3745-31-05(D)	Nitrogen oxides (NOx) emissions from this emissions unit shall not exceed 1.0 ton per rolling, 12-month period.
OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-17-08(B)	See A.I.2.c.
OAC rule 3745-17-11(B)(1)	The total particulate emissions, attributable to this emissions unit alone, that are released through stacks or vents, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 and a maximum process weight rate of 100 pounds per hour.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a The permittee shall minimize or eliminate visible emissions of fugitive dust through the employment of reasonably available control measures (RACM). These measures shall include, but not be limited to, the following:

i. the use of adequate hooding or equivalent capture devices for the crucible filling, arc fusion, and crucible cooling operations, for the sand storage and transfer equipment, and for the equipment used to mechanically finish quartz crucibles and tubing including, but not limited to saws, sanders, bevelers, trimmers and grinders; and

ii. all fugitive dust captured shall be vented to the baghouse.

By employing RACM, visible emissions of fugitive dust from any non-stack egress points from the building shall be minimized.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best Permit to Install available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established in Permit to Install02-13174.

2.c This facility is not located in an Appendix A area; therefore, in accordance with OAC rule 3745-17-08(A)(1), OAC rule 3745-17-08(B) is not applicable to this emissions unit.

2.d It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx may not be captured and vented to the stacks. The NOx emissions from the cooling of the crucible machines shall be vented to the stacks.

II Operational Restrictions

1. The maximum production rate of crucibles of any size, for this emissions unit, based on rolling, 12-month summations of the production rates, shall not exceed 26,667.

To ensure enforceability of this provision during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following crucible production restrictions and emission limitations:

YEAR/MONTH (after PTI effective date)	TOTAL CUMULATIVE ALLOWABLE CRUCIBLES PRODUCED (P006 only)
1-1	2222
1-2	4444
1-3	6666
1-4	8888
1-5	11,110
1-6	13,332
1-7	15,554
1-8	17,776

1-9	19,998
1-10	22,220
1-11	24,442
1-12	26,667

2. After the first twelve calendar months of operation following the effective date of this Permit to Install, compliance with the annual crucible production restriction of 26,667 shall be based upon rolling, twelve-month summations of the crucible production rates.

III Monitoring and/or Recordkeeping

1. The permittee shall perform weekly checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible fugitive particulate emissions from the building egress points (i.e., building windows, doors, roof monitors, etc) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operation log. If visible emissions are observed, the permittee shall also note the following in the operations log:

   a. the location(s) and color(s) of the emissions;

   b. whether the emissions are representative of normal conditions;

   c. if the emissions are not representative of normal operations, the cause(s) of the abnormal emissions;

   d. the total duration of any visible emission incident; and

   e. any corrective actions taken to eliminate the visible emissions.

2. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks (including the baghouse) 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. the total duration of any visible emission incident; and

   c. any corrective actions taken to eliminate the visible emissions.

   Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions unit from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.2.

The permittee shall revert to daily readings if any visible emissions are observed.

3. The permittee shall maintain monthly records of the following for this emissions unit:

a. the number of crucibles produced;

b. beginning after the first 12 calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month summation of the crucible production figures;

c. the total emissions of NOx, in tons, calculated in accordance with the calculations attached to this Permit to Install; and

d. beginning after the first 12 calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month summation of the NOx emissions, in tons.

Also, during the first 12 calendar months of operation after the effective date of this Permit to Install, the permittee shall record the cumulative crucible production and NOx emissions for this emissions unit for each calendar month.

4. The permittee shall calculate NOx emissions in accordance with the following equation:

NOx monthly emissions, in tons, = number of crucibles x 0.075 lb/unit x 1ton/2000lb

where: The crucible number is the number of crucibles produced by crucible machine #5. The NOx emission factor of 0.075 lb/unit is based on the 1996 stack tests at the Newark facility.

Monthly NOx emissions shall be totaled to obtain the rolling and annual emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

a. identify all days during which any visible fugitive particulate emissions were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and

b. describe any corrective actions taken to eliminate the visible fugitive particulate emissions.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

3. The permittee shall submit quarterly deviation (excursion) reports, as specified in Part I.A.1.c. of these terms and conditions, that identify all exceedances of the following:

   a. after the first 12 months of operation following the effective date of this Permit to Install, the rolling, 12-month limitation on crucible production;

   b. after the first 12 months of operation following the effective date of this Permit to Install the rolling, 12-month NOx emission limitation; and

   c. for the first 12 calendar months of operation following the effective date of this Permit to Install, the maximum allowable, monthly cumulative crucible production levels.

4. The permittee shall submit annual reports of the following information:

   a. the annual crucible production rate for this emissions unit; and

   b. the total annual emissions of NOx from this emissions unit.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by April 15 of each year and shall cover the previous 12-month period.

V Testing Requirements

1. Compliance with the emissions limitations in Section A.I.1. of these terms and conditions shall be determined in accordance with the following methods:

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 (ten) percent opacity, as a 3-minute average.

Applicable Compliance Method

If required by Ohio EPA, compliance with the above visible emission limitation shall be determined using Method 9 of 40 CFR, Part 60, Appendix A.

c. Emission Limitation

The total particulate emissions attributable to this emissions unit alone, that are released through stacks or vents, shall not exceed 0.551 pound per hour, based on Table I of OAC rule 3745-17-11 and based on a maximum process weight (PWR) of 100 pounds per hour, and 2.41 tons per year particulate emissions;

Applicable Compliance Method

Compliance with the particulate limits above, shall be determined in accordance with the following:

If required by Ohio EPA, emission testing shall be performed for each stack and mist eliminator outlet to demonstrate compliance with the allowable hourly mass emission rate.

The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rate:

Methods 1-5 of 40 CFR Part 60, Appendix A.

Performance testing shall be conducted in accordance with OAC rule 3745-17-03(B)(10).

Compliance with the allowable annual mass emission rate shall be demonstrated by multiplying the actual hourly emission rate by the actual hours of operation during the year and dividing by 2000.

d. Emission Limitation

i. The allowable hourly NOx emission rate of 1.36 pounds per hour.

ii. The allowable rolling, 12-month NOx emission rate of 1.0 ton.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly emission rate shall be demonstrated by emission testing using the following test methods:

Methods 1-4 and 7 of 40 CFR Part 60, Appendix A "Determination of Nitrogen Oxides Emissions from Stationary Sources".

The permittee shall calculate the rolling, 12-month NOx emissions in accordance with the equation and record keeping specified in Part A.III.4 of these terms and conditions.

2.a Emission Testing Requirements

The permittee shall conduct, or have conducted, emission testing for this emissions unit in accordance with the following requirements:

i. The emission testing shall be conducted within 12 months after the effective date of this Permit to Install.

ii. The emission testing shall be conducted for each uncontrolled stack and each mist eliminator outlet and shall be conducted to demonstrate compliance with the allowable hourly mass emission for particulate emissions and the allowable hourly mass emission rate for NOx emissions, and to determine a NOx emission factor for crucible production. For the purposes of emission testing, the crucible forming enclosure vent and vacuum pumps emissions shall be included in the compliance determination.

iii. The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rates for particulate emissions and NOx and to determine the emission factor for NOx:

Methods 1-5 and 7 of 40 CFR Part 60, Appendix A.

iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, with respect to arc strength in kw-hr and the surface area of the crucibles, unless otherwise specified or approved by the Northeast District Office of the Ohio EPA.

2.b Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Northeast District Office of the Ohio EPA and Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s).

Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emission test(s).

2.c Personnel from the Northeast District Office of the Ohio EPA and local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

2.d A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

none

B. State Only Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
Electric Crucible machine # 5 including vacuum pumps, each with a mist eliminator, and the crucible forming enclosure vent, the cutting station and the cooling table (P006)		
The requirements of this permit supercede those requirements identified in Permit to Install number 02-535 issued on April 6, 1979.		

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

V. Testing Requirements

none

VI. Miscellaneous Requirements

none

Part III - SPECIAL TERMS AND CONDITIONS FOR SPECIFIC EMISSIONS UNIT(S)

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P032 - Large diameter lathe number 17 (natural gas fired) 1.26 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit (The 15.23 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, 3745-31-05(D) and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	

OAC rule 3745-17-11(B)(1)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-18-06(E)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-21-08	See A.I.2.a.
OAC rule 3745-23-06(B)	See A.I.2.b.
	See A.I.2.b

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx

may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF) (natural gas)
.	
.	
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of This Permit to Install #02-13174, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of This Permit to Install 02-13174, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P032 - Large diameter lathe number17 (natural gas fired) 1.26MmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

none

III Monitoring and/or Recordkeeping

none

IV Reporting Requirements

none

V Testing Requirements

none

VI Miscellaneous Requirements

none

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P033 - Large diameter lathe number 18 (natural gas fired) 1.26 MmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit (The 15.23 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-31-05(D), 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this

	emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)	See A.I.2.a.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.
The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

   b. Emission Limitation

      0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P033 - Large diameter lathe number 18 (natural gas fired) 1.26 MmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P034 - Large diameter lathe number 19 (natural gas fired) 1.26 MmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit (The 15.23 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-31-05(D), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed

OAC rule 3745-17-11(B)(1)	twenty percent opacity, as a six-minute average, except as provided by rule. The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)	See A.I.2.a.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

   After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

b. describe any corrective actions taken to eliminate the visible particulate emissions.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

   b. Emission Limitation

      0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P034 - Large diameter lathe number 19 (natural gas fired) 1.26 MmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P035- Large diameter lathe number 20 (natural gas fired) 1.26 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit (The 15.23 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed

OAC rule 3745-17-11(B)(1)	twenty percent opacity, as a six-minute average, except as provided by rule. The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)	See A.I.2.a.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

   After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

b. describe any corrective actions taken to eliminate the visible particulate emissions.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

   b. Emission Limitation

      0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P035- Large diameter lathe number 20 (natural gas fired) 1.26 MmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

Part III - Terms and Conditions for Emissions Units

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P036- Large diameter lathe number 21 (natural gas fired) 1.26 MmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit (The 15.23 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.

OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)	See A.I.2.a.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx

may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF) (natural gas)
.	
.	
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P036- Large diameter lathe number 21 (natural gas fired) 1.26 MmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

Part III - Terms and Conditions for Emissions Units

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P037- Large diameter lathe number 22 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit. (The 26.72 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.

OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)	See A.I.2.a.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx

may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P037- Large diameter lathe number 22 (natural gas fired) 1.26 MmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

none

V Testing Requirements

None

VI Miscellaneous Requirements

None

Part III - Terms and Conditions for Emissions Units

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P038- Large diameter lathe number 23 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit (The 26.72 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	

OAC rule 3745-17-11(B)(1)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-18-06(E)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-21-08	See A.I.2.a.
OAC rule 3745-23-06(B)	See A.I.2.b.
	See A.I.2.b.

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx

may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF) (natural gas)
.	
.	
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions..

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P038- Large diameter lathe number 23 (natural gas fired) 2.21 mmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

Part III - Terms and Conditions for Emissions Units

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P039- Large diameter lathe number 24 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit. (The 26.72 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D) , 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	

OAC rule 3745-17-11(B)(1)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-18-06(E)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-21-08	See A.I.2.a.
OAC rule 3745-23-06(B)	See A.I.2.b.
	See A.I.2.b

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx

may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P039- Large diameter lathe number 24 (natural gas fired) 2.21 mmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

Part III - Terms and Conditions for Emissions Units

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P040- Large diameter lathe number 25 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)	NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit. (The 26.72 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	

OAC rule 3745-17-11(B)(1)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-18-06(E)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-21-08	See A.I.2.a.
OAC rule 3745-23-06(B)	See A.I.2.b.
	See A.I.2.b.

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx

may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P040- Large diameter lathe number 25 (natural gas fired) 2.21 mmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

Part III - Terms and Conditions for Emissions Units

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P041- Large diameter lathe number 26 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit. (The 26.72 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (P025 and P032-P043), combined.

OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)	See A.I.2.a.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx

may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of this Permit to Install, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P041- Large diameter lathe number 26 (natural gas fired) 2.21 mmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

Part III - Terms and Conditions for Emissions Units

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P042- Large diameter lathe number 27 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit. (The 26.72 pounds per hour limitation is the potential to emit for this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production lathes , repair and bench (P025 and P032-P043), combined.
	OAC rule 3745-17-07(A)	

OAC rule 3745-17-11(B)(1)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-18-06(E)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-21-08	See A.I.2.a.
OAC rule 3745-23-06(B)	See A.I.2.b.
	See A.I.2.b.

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NOx

may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only natural gas and hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

   To ensure enforceability during the first twelve (12) months of operation following the effective date of PTI 02-13174, the permittee shall not exceed the following natural gas usage levels for all 11 production lathes:

2.

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF) (natural gas)
1-1	3
1-2	6
1-3	9
1-4	12
1-5	15
1-6	18
1-8	24
1-9	27
1-10	29
1-11	30
1-12	30.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual natural gas usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to daily readings if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for emissions units P025 and P032-P042, combined:

a. the total natural gas usage;

b. the rolling, 12-month natural gas usage;

c. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative natural gas usage, for all production lathes (P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (16-27), combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage(mmscf/month) x 12.09 lbs/mmBtu x
1050 mmBtu/mmscf x 1 ton/2000 lbs

The emission factor for NOx is based on a 1998 stack test and equals 12.09 lbs/mmBtu.
The natural gas usage is for all LD lathes 16-27, combined.
The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first twelve calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitations for natural gas fuel usage for all production lathes (P025 and P032-P042), combined; and

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for natural gas for all production lathes (P025 and P032-P042), combined.

3. The permittee shall submit annual reports that specify the total amount of natural gas used and the total amount of NOx emitted from emissions units P025 and P032-P042 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

      Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

      Applicable Compliance Method

      If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hr by 8,760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 26.72 pounds per hour from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production and bench lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P042- Large diameter lathe number 27 (natural gas fired) 2.21 mmBtu/hr; H2 pilot		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None

Part III - Terms and Conditions for Emissions Units

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P043-Four (4) repair lathes [0.78, 0.58, 0.78 and 0.48 mmBtu/hr each]; and two (2) bench repair lathes (0.02mmBtu/hr each)	OAC rule 3745-31-05(A)(3)	NOx emissions shall not exceed 10.82 pounds per hour and 0.33 lb/hr from all repair lathes combined and both bench repair lathes, respectively. (The 10.82 pounds per hour and the 0.33 lb/hr limitations are the potentials to emit for the components of this emissions unit; therefore, monitoring, record keeping, and reporting requirements are not needed for this emission limitation.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-31-05(D), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
	OAC rule 3745-31-05(D)	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all

	production, repair and bench lathes, P025 and P032-P043, combined.
OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-17-07(B)	The opacity limitation specified by this rule is less stringent than the opacity limitation established pursuant to OAC rule 3745-31-05(A)(3).
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)	See A.I.2.a.
OAC rule 3745-21-08	See A.I.2.b.
OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

2.a Because the process weight rate for this individual lathe is less than 1000 lbs per hour, this emissions unit is exempt from the requirements of this rule.

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established in this Permit to Install.

On November 5, 2002, OAC rule 3745-21-08 was revised to delete paragraph (B); therefore, paragraph (B) is no longer part of the State regulations. However, that rule revision has not yet been submitted to the U.S. EPA as a revision to Ohio's State Implementation Plan (SIP). When the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-21-08, the requirement to satisfy the "best available control techniques and operating practices" will no longer exist as part of the federally-approved

SIP for Ohio, and this term and condition will no longer be applicable to this emissions unit.

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in this Permit to Install.

2.c It is the permittee's normal practice to vent all of the NOx emissions from this emissions unit to the stacks, however, it is understood that a small number of molecules of NOx may not be captured and vented to the stacks. The NOx emissions from the cooling of the tubes produced on these lathes shall be vented to the stacks.

2.d All particulate emissions from this emissions unit shall be vented to the stacks.

2.e This emissions unit is capable of burning only hydrogen.

II Operational Restrictions

1. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, combined, shall not exceed 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of this Permit to Install, the permittee shall not exceed the following hydrogen usage levels for all the combined equipment described above:

2.

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MmSCF) (hydrogen)
1-1	0.1
1-2	0.2
1-3	0.3
1-4	0.4
1-5	0.5
1-6	0.6
1-7	0.7
1-8	0.8
1-9	0.9
1-10	1.0
1-11	1.1
1-12	1.29

After the first 12 calendar months of operation following the effective date of this Permit to Install, the permittee shall comply with the annual hydrogen fuel usage limitations based on rolling, 12-month summations.

III Monitoring and/or Recordkeeping

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation 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. the total duration of any visible emission incident; and

   c. any corrective actions taken to eliminate the visible emissions.

   Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from daily to weekly readings if the following conditions are met:

   a. for 1 full quarter the facility's visual observations indicate no visible emissions; and

   b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

   The permittee shall revert to daily if any visible emissions are observed.

2. The permittee shall maintain monthly records of the following information for this emissions unit:

   a. the hydrogen usage;

   b. the rolling, 12-month hydrogen usage;

   c. the rolling 12-month NOx emissions from this emissions unit;

   d. the rolling 12-month NOx emissions from all production lathes (P025 and P032-P042) combined; and

   e. the rolling 12-month NOx emissions from all production lathes, and repair and bench lathes (P025, P032-P043) combined.

   Also, during the first 12 calendar months of operation, after the final issuance of this Permit to Install, the permittee shall record the cumulative hydrogen fuel usage for this emissions unit for each calendar month.

   Total NOx monthly emissions, in tons, resulting from hydrogen usage from the 2 bench and 4 repair lathes, combined, shall be calculated using the following equation:

NOx, in tons = total natural gas usage mmscf/month x 8.53 lbs/mmBtu x
325 mmBtu/mmscf x 1 ton/2000 lbs

where:

The emission factor for NOx, based on a 1998 stack test, is 8.53 lbs/mmBtu.
The hydrogen usage is for the 2 bench and 4 repair lathes, combined.
The heat content of hydrogen = 325 mmBtu/mmscf..

Monthly results for the hydrogen usage shall be summed to obtain the annual and rolling NOx emissions.

IV Reporting Requirements

1. The permittee shall submit semiannual written reports that:

   a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and

   b. describe any corrective actions taken to eliminate the visible particulate emissions.

   These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 and July 31 of each year and shall cover the previous 6-month period.

2. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:

   a. after the first 12 calendar months of operation following the effective date of this Permit to Install, the rolling, 12-month limitation for hydrogen usage for all repair and bench lathes (P043);

   b. for the first 12 calendar months of operation following the effective date of this Permit to Install, the monthly allowable cumulative fuel usage for hydrogen for all repair and bench lathes; (P043).

3. The permittee shall submit annual reports that specify the total amounts of hydrogen and the total amount of NOx emitted from emissions units P025 and P032-P043 for the previous calendar year by April 15 of the following year.

V Testing Requirements

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

   a. Emission Limitation

Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six- minute average, except as provided by rule.

Applicable Compliance Method

If required by Ohio EPA, compliance shall be determined by Method 9, Visible Determination of the Opacity of Emissions from Stationary Sources, 40 CFR Part 60, Appendix A, as specified in OAC rule 3745-17-03(B)(1).

b. Emission Limitation

0.551 pound per hour and 2.4 tons per year of particulate emissions

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly particulate emission limit above shall be determined in accordance with OAC rule 3745-17-03 and Method 5 of 40 CFR Part 60, Appendix A.

Because the annual particulate limit was established by multiplying the short-term limit of 0.551 lb/hour by 8760 hours of operation per year and dividing by 2000 lbs/ton, compliance with the annual limit is assumed provided that compliance with the short-term hourly limit is maintained.

c. Emission Limitation

NOx emissions shall not exceed 10.82 pounds per hour and 0.33 pound per hour from all repair, combined and both bench repair lathes, respectively, from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes, combined.

Applicable Compliance Method

If required by Ohio EPA, compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A.

Compliance with monthly, annual and rolling, 12-month NOx emission limitations shall be determined in accordance with the equations and record keeping in Section A.III.2. of these terms and conditions and summed with the total annual and rolling NOx emissions from all production lathes.

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:

a. The emission testing for NOx and particulate emissions shall be conducted within 12 months following the effective date of this Permit to Install. Thereafter, emission testing for NOx shall be conducted annually.

b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.

c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.

d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office and the Lake County General Health District. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the tests.

Failure to submit such notification for review and approval prior to the tests may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions tests.

Personnel from the Ohio EPA Northeast District Office and/or Lake County General Health District shall be permitted to witness the tests, examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.

A comprehensive written report of the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the tests. The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operations(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 specified in narrative form following the table.

Operations, Property, and/or Equipment	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
P043-Four (4) repair lathes [0.78, 0.58, 0.78 and 0.48 mmBtu/hr each]; and two (2) bench repair lathes (0.02mmBtu/hr each)		

2. Additional Terms and Conditions

2.a none

II Operational Restrictions

None

III Monitoring and/or Recordkeeping

None

IV Reporting Requirements

None

V Testing Requirements

None

VI Miscellaneous Requirements

None