



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL
LAKE COUNTY**

CERTIFIED MAIL

Street Address:

Lazarus Gov. Center TELE: (614) 644-3020 FAX: (614) 644-2329

Mailing Address:

Lazarus Gov.
Center

Application No: 02-13174

DATE: 12/30/2003

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

Enclosed please find an Ohio EPA Permit to Install which will allow you to install the described source(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, I urge you to read it carefully.

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.

You are hereby notified that this action by the Director is final and may be appealed to the Ohio Environmental Review Appeals Commission pursuant to Chapter 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. It must be filed within thirty (30) days after the notice of the Directors action. A copy of the appeal must be served on the Director of the Ohio Environmental Protection Agency within three (3) days of filing with the Commission. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission
309 South Fourth Street, Room 222
Columbus, Ohio 43215

Sincerely,

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

CC: USEPA

NEDO



STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY

**Permit To Install
Terms and Conditions**

**Issue Date: 12/30/2003
Effective Date: 12/30/2003**

FINAL PERMIT TO INSTALL 02-13174

Application Number: 02-13174
APS Premise Number: 0243160086
Permit Fee: **\$6400**
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 emission limitations, operational restrictions, and control device operating parameter limitations, 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

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.

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 application must be made to the Director for the installation or modification of any other emissions unit(s).

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

<u>Pollutant</u>	<u>Tons Per Year</u>
NOx	249.45
PE	75.00

Part II - FACILITY SPECIFIC TERMS AND CONDITIONS

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

I EMISSION LIMITATIONS:

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

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

TABLE 1

Ohio EPA Unit number	Source Description	Oper Hours	Restricted Operating hours, fuel usage or pieces produced	Ohio EPA Allowable NO _x Emission Rate lbs/hr	Potential NO _x Emissions (8760 hours or permit by rule exempt)	RestrictedPotential Annual NO _x Emissions (limited, hours production or fuel usage)	Restricted Potential PM emissions or allowable	VOC (Un-re-strict-ed) PTE (TPY)	CO (Un-r e-stri ct-ed) PTE (TPY)
1	2	3	4	5	6	7	8		
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

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 6.12TPY 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 Generators 1 & 2 4.88 mmBtu/hr; 7.04 mmBtu/hr respectively		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)	0.0697 lb/mmBtu per generator (short term limit)	D	D
B010	Emergency Generator #3, 11.26 mmBtu/hr		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)	0.0697 lb/mmBtu per generator (short term limit)	D	2.39

B015& B016	Emergency generators 4-5 11.73mmBtu/h r each (Not permitted)			#4 37.54 Lbs/hr	#4 9.38 TPY		0.0697 lb/mmBtu per generator (short term limit)	D	2.50 each					
				#5 37.54 Lbs/hr	#5 9.38TPY @ 500 hrs/yr									
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	0.52 TPY per calciner	0.52 TPY	2.04 lbs/hr PM	D	D					
										1.89 lbs/hr all 16 combined	5.6 TPY rolling summation all 16 combined	5.6 TPY rolling 12 month summation all 16 combined		
P022	Calciner #6 (natural gas)	8760											0.25 lbs/hr and 6 lbs/day	D
Z002-Z0 11	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	6 TPY	1 TPY per rolling, 12 month summation		D	D					
				0.075 lb/crucible										

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
P025, and P032-P0 42	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		.33 lb/hr	1.46 TPY combined			D	D
P028	Presintering ovens 5 and 6 (electric)	8760	—	—	0	0		D	D

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P029	Addition of tumbler #6 to P001	8760	see P001	see P001	see P001	see P001		D	D
P030	LD lathes 28 and 29 Removed								
<i>Insignificant emission units</i>									
<i>B004</i>	<i>Fire Pump House Boiler (Hot Water)</i>	<i>8760</i>	<i>None</i>	<i>0.10 lb/hr</i>	<i>0.42 TPY</i>	<i>0.42 TPY</i>	<i>NONE</i>	<i>D</i>	<i>D</i>
<i>B011 Exempt by 3745-31-03(A)(4)(a)</i>	<i>North natural gas engine 1520 BTU/hr 138 HP (RECORD KEEPING Required)</i>	<i>500</i>	<i>NONE</i>	<i>3.30 lbs/hr</i>	<i>0.83 TPY</i>	<i>0.83 TPY</i>	<i>NONE</i>	<i>D</i>	<i>D</i>

<i>B012 Exempt by 3745-31- 03(A)(4)(a)</i>	<i>South natural gas engine 1410 BTU/hr 128 HP (RECORD KEEPING Required)</i>	<i>500</i>	<i>None</i>	<i>3.10 lbs/hr</i>	<i>0.78 TPY</i>	<i>0.78 TPY</i>	<i>NONE</i>	<i>D</i>	<i>D</i>
<i>Z042</i>	<i>Southwest NG Engine #3</i>	<i>500</i>	<i>500 Hours</i>	<i>3.10 lb/hr</i>	<i>0.78 TPY</i>	<i>0.78 TPY</i>	<i>NONE</i>	<i>D</i>	<i>D</i>
<i>P011</i>	<i>Tubing furnaces (1-6) electric with H2 pilot light</i>	<i>8760</i>	<i>None</i>	<i>0.0091 lb/hr</i>	<i>0.040 TPY combined</i>	<i>0.04 TPY</i>	<i>None</i>	<i>D</i>	<i>D</i>
<i>P024</i>	<i>Tubing furnaces (7-15) electric with H2 pilot light</i>	<i>8760</i>	<i>None</i>	<i>0.0144 lb/hr</i>	<i>0.0627 TPY combined</i>	<i>0.0627 TPY combined</i>	<i>None</i>	<i>D</i>	<i>D</i>
<i>Z024</i>	<i>Tubing furnaces (16-19, 21, 50&51) electric with H2 pilot light</i>	<i>8760</i>	<i>None</i>	<i>0.012 lb/hr</i>	<i>0.0509 TPY combined</i>	<i>0.0509 TPY combined</i>	<i>None</i>	<i>D</i>	<i>D</i>
<i>Z051</i>	<i>Tubing furnaces (52-54) electric with H2 pilot light</i>	<i>8760</i>	<i>None</i>	<i>0.005 lb/hr</i>	<i>0.022 TPY combined</i>	<i>0.022 TPY combined</i>	<i>None</i>	<i>D</i>	<i>D</i>
<i>Z054</i>	<i>Harper Presintering Oven</i>	<i>8760</i>	<i>None</i>	<i>0.94 lb/hr</i>	<i>0.41 TPY</i>	<i>0.41 TPY</i>	<i>None</i>	<i>D</i>	<i>D</i>

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<i>Z058</i>	<i>Glazers (2 production and a fiber optic)</i>	<i>8760</i>	<i>None</i>		<i>0.1 tpy</i>	<i>0.1tpy</i>	<i>None</i>	<i>—</i>	<i>D</i>
<i>Total (Insig & DeMin)</i>	<i>Subtotal of Insignificant per Title V and DeMinimis Emissions as presented in Red above</i>					<i>5.13 NOx</i>			
Fugitive Emission									
Total	Minus Insignificant and DeMinimis Emissions as presented in Italics above					249.45 NOx			

I. OPERATIONAL RESTRICTIONS:

The maximum NOx emissions for all emissions units listed in Table 1 and Table 2 shall not exceed 249.45 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 the effective date 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:

CALENDAR MONTH(S) FOLLOWING PTI EFFECTIVE DATE	NOX EMISSIONS (TONS)
1-1	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	249.45

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(C).

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 effective date of this Permit to Install, 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 effective date of this Permit to Install, compliance with the annual NOx emission limitation shall be based upon monthly rolling, 12 consecutive month summations of NOx emissions.

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General Electric Co. - Willoughby Quartz

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All of the following limits are first year cumulative consecutive month summations:

TABLE 2

Year/ Month	Z049-50 CB Boilers 74 Mmscf ng /yr rolling (Mmscf ng)	B011 north natural gas engine 500 hr/yr rolling summation (hours)	B012 south natural gas engine 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(C):
 - a. During the first 12 calendar months of operation following the effective date of this Permit to Install,
 - 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 effective date of this Permit to Install, 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.

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Applicable Compliance Method

Stack Testing if required by Ohio EPA, specifically, those units which emit or potentially emit NO_x, such as those with added N₂ and higher temperatures which promotes NO_x 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 NO_x annual emission limitations are based on restricted operating hours, fuel usage and production restrictions, and the short term limitations for NO_x, compliance shall be determined by the record keeping as required in Part II.A.2 of this permit.

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

- a. The emission testing for NO_x shall be conducted within 1 year after issuance of this permit.
- b. The emission testing shall be conducted to determine compliance with the allowable emission rates for NO_x.
- c. The following test method from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for NO_x:

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.

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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.

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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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B001-Titusville natural gas fired boiler (10.9 MmBtu/hr)	OAC rule 3745-31-05(C)	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 MONTH(S) FOLLOWING PTI EFFECTIVE DATE	ALLOWABLE CUMULATIVE TOTAL VOLUME of NATURAL GAS USAGE (B001 and B002 COMBINED)
	(mmscf)
1-1	40
1-2	48
1-3	55
1-4	63
1-5	70
1-6	77
1-7	85

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PTI Application: **02 12174**

Facility ID: **0243160086**

Issued

Emissions Unit ID: B001

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 NO_x 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 NO_x emitted, in tons, based on a rolling, 12-month summations of the monthly emissions.

The NO_x emissions shall be calculated by multiplying the total amount of natural gas used, in mmscf, by 100 lbs of NO_x 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 NO_x emissions shall be calculated by adding the individual NO_x emissions for the preceding 11 calendar months plus the total NO_x 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 NO_x emission limitation.
3. For the first 12 months after the effective date of this Permit to Install, 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/mm³cu 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).

Issued

Emissions Unit ID: B001

1.c Emission Limitation -

The NO_x 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 NO_x emissions.

Applicable Compliance Method:

Compliance with the tons per year limitation shall be determined by the record keeping in Section A.III.2.

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 NO_x per mmscf), and dividing by the heat content of natural gas (1050 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

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General

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Issued: 12/30/2003

Emissions Unit ID: B001

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B002-Titusville natural gas fired boiler (10.9 mmBtu/hr)	OAC rule 3745-31-05(C)	The combined NO _x 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.

Issued

Emissions Unit ID: B002

- 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 MONTH(S) FOLLOWING PTI EFFECTIVE DATE	ALLOWABLE CUMULATIVE TOTAL VOLUME of NATURAL GAS USAGE (B001 and B002 COMBINED)
--	---

	(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

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General

PTI A₁

Issued: 12/30/2003

Emissions Unit ID: B002

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 NO_x 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 NO_x emitted, in tons, based on a rolling, 12-month summations of the monthly emissions.

The NO_x emissions shall be calculated by multiplying the total amount of natural gas used, in mmscf, by 100 lbs of NO_x 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 NO_x emissions shall be calculated by adding the individual NO_x emissions for the preceding 11 calendar months plus the total NO_x 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:

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Emissions Unit ID: B002

- a. the rolling, 12-month restriction for fuel usage; and/or
 - b. the rolling 12-month NOx emission limitation.
3. For the first 12 months after the effective date of this Permit to Install, 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/mmccu 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.2.

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 NO_x 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>OAC rule 3745-17-07(A)</u>
B008 - Emergency Diesel Generator 1- 4.88 mmBtu/hr (697 horsepower and 520 kW); and	OAC rule 3745-31-05(A)(3)	
Emergency Diesel Generator 2- 7.04 mmBtu/hr (1006 horsepower and 750 kW)		
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(C)	
	OAC rule 3745-23-06(B)	
	OAC rule 3745-17-11(B)(5)(a)	
	OAC rule 3745-18-06(G)	

Applicable Emissions
Limitations/Control
Measures

NO_x 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(C), 3745-17-07, 3745-17-11, 3745-18-06, and 3745-23-06.

Combined NO_x emissions from emissions units B008, B010, B015 and B016 shall not exceed 1.6 tons per year based on a rolling, 12-month summation.

See A.I.2.c below.

Particulate emissions from each generator shall not exceed 0.0697 lb/mmBtu (See A.I.2.a below.).

Exempt

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.

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General

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Issued: 12/30/2003

Emissions Unit ID: B008

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(A)(3).
- 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

- The permittee shall burn only diesel fuel in this emissions unit.
- 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 MONTH(S) FOLLOWING PTI EFFECTIVE DATE	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

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	Emissions Unit ID: B008
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 diesel fuel 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 diesel fuel tank that supplies emissions units B008, B010, B015 and B016 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 NO_x 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 NO_x emitted per year based on a rolling, 12-month summation from emissions units B008, B010, B015, and B016 combined.
3. For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel 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 diesel fuel oil supplier to collect a representative grab sample for each shipment of diesel fuel 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.
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 Section 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.
4. 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:

0.0697 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 3.4-2 (10/96) for diesel (0.0697 lb PM/mmBtu).

If required by the Ohio EPA, 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 Section A.III.2 and the table in Section A.II.2 of these terms and conditions.

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 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, except as provided by rule.

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General

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Issued: 12/30/2003

Emissions Unit ID: B008

Applicable Compliance Method:

If required by the Ohio EPA, by the Ohio EPA,, 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

Issued: 12/30/2003

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
<p>B008 - Emergency Diesel Generator 1- 4.88 mmBtu/hr (697 horsepower and 520 kW); and</p> <p>Emergency Diesel Generator 2- 7.04 mmBtu/hr (210 horsepower and 750 kW)</p> <p>The requirements of this permit supercede those requirements included in Permit to Install number 02-7485 issued on May 18, 1994.</p>		

2. Additional Terms and Conditions

2.a none

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

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General

PTI A1

Issued: 12/30/2003

Emissions Unit ID: B008

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	OAC rule 3745-17-07(A)
B010 - Emergency Diesel Generator 3- 11.26 mmBtu/hr (1609 horsepower and 1200 kW)	OAC rule 3745-31-05(A)(3)	
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(C)	
	OAC rule 3745-17-11(B)(5)(a)	
	OAC rule 3745-18-06(G)	
	OAC rule 3745-23-06(B)	

Issued

Emissions Unit ID: B010

Applicable Emissions
Limitations/Control
Measures

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 rule 3745-31-05(C), 3745-17-07, 3745-17-11, 3745-18-06, and 3745-23-06.

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.

Particulate emissions from this emissions unit shall not exceed 0.0697 lb/mmBtu (See A.I.2.a below).

Sulfur dioxide emissions from this emissions unit shall not exceed 0.5 pound of sulfur dioxide per mmBtu of actual heat input.

See A.I.2.c below.

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(C).
- 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

- The permittee shall burn only diesel fuel oil in this emissions unit.
- 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 MONTH(S) FOLLOWING PTI EFFECTIVE DATE	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 diesel fuel 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 diesel fuel tank that supplies emissions units B008, B010, B015 and B016 to allow for accurate determination of the diesel 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 NO_x 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 NO_x emitted per year based on a rolling 12 month summation from emissions units B008, B010, B015, and B016 combined.
3. For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel 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 diesel fuel oil supplier to collect a representative grab sample for each shipment of diesel fuel 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:

Issued

Emissions Unit ID: B010

- 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:

0.0697 lb/mmBtu particulate emissions from each generator

Applicable Compliance Method:

Compliance with this emission limitation shall be demonstrated by the emission factor found in "Compilation of Air Pollutant Emission Factors", Table 3.4-2 (10/96) for diesel (0.0697 lb PM/mmBtu).

If required by the Ohio EPA, 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 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 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 Section A.III.2 and the table in Section A.II.2 of these terms and conditions.

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 Method 7 and the requirements of OAC rule 3745-31-05.

Issued

Emissions Unit ID: B010

d. Emission Limitation:

Visible particulate emissions from any stack serving this emissions unit shall not exceed 20% 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 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 Diesel Generator 3- 11.26 mmBtu/hr (1609 horsepower and 1200 kW)	none	none
The requirements of this permit supercede those requirements identified in Permit to Install number 02-7485 issued on May 18, 1994.		

2. Additional Terms and Conditions

2.a none

II. Operational Restrictions

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General

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Emissions Unit ID: B010

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	
B015 - Emergency Generator 4 - 11.73 mmBtu/hr (1676 horsepower and 1250 kW)	OAC rule 3745-31-05(A)(3)	OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	
	OAC rule 3745-17-07(A)	
	OAC rule 3745-17-11(B)(5)(a)	
	OAC rule 3745-18-06(G)	

Applicable Emissions
Limitations/Control
Measures

heat input.

See A.I.2.c below.

Oxides of nitrogen (NO_x) emissions from this emissions unit shall not exceed 37.54 pounds per hour.

The requirements of this rule also include compliance with OAC rule 3745-31-05(C), 3745-17-07, 3745-17-11, 3745-18-06, and 3745-23-06.

Combined NO_x emissions from emissions units B008, B010, B015 and B016 shall not exceed 1.6 tons per year based on a rolling 12-month summation.

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.

Particulate emissions from this generator shall not exceed 0.0697 lb/mmBtu. (See A.I.2.a below.)

Sulfur dioxide emissions from this generator shall not exceed 0.5 pound of sulfur dioxide per mmBtu of actual

Issued

Emissions Unit ID: B015

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(C).
- 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

- The permittee shall burn only diesel fuel in this emissions unit.
- 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 MONTH(S) FOLLOWING PTI EFFECTIVE DATE	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 diesel fuel 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 diesel fuel tank that supplies emissions units B008, B010, B015 and B016 to allow for accurate determination of the diesel 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 NO_x 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 NO_x emitted per year based on a rolling 12 month summation from emissions units B008, B010, B015, and B016 combined.
3. For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel 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 diesel fuel oil supplier to collect a representative grab sample for each shipment of diesel fuel 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.

Issued

Emissions Unit ID: B015

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 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 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:

0.0697 lb/mmBtu particulate emissions from each generator

Applicable Compliance Method:

Compliance with this emission limitation shall be demonstrated by the emission factor found in "Compilation of Air Pollutant Emission Factors", Table 3.4-2-1 (10/96) for diesel (0.0697 lb PM/mmBtu).

If required by the Ohio EPA, the permittee shall demonstrate compliance with this emissions limitation in accordance with 40 CFR Part 60, Appendix A, Methods 1 through

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General

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Issued: 12/30/2003

Emissions Unit ID: B015

5 and the procedures specified in OAC rule 3745-17-03(B)(10).

b. Emission Limitation:

0.5 pound of sulfur dioxide per mmBtu 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:

NO_x emissions from this emissions unit shall not exceed 37.54 pounds per hour and 1.6 tons per year of NO_x based on a rolling 12- month 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 NO_x (3.2 lbs/mmBtu) and the record keeping and monitoring requirements of Section A.III.2 and the table in Section A.II.2 of these terms and conditions.

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 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, except as provided by rule.

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General

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Issued: 12/30/2003

Emissions Unit ID: B015

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General

PTI A₁

Issued: 12/30/2003

Emissions Unit ID: B015

Applicable Compliance Method:

If required by the Ohio EPA, 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B015 - Emergency Generator 4 - 11.73 mmBtu/hr (1676 horsepower and 1250 kW)		

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	OAC rule 3745-17-07(A)
B016 - Emergency Generator 5 - 11.73 mmBtu/hr (1676 horsepower and 1250 kW)	OAC rule 3745-31-05(A)(3)	
	OAC rule 3745-31-05(C)	
	OAC rule 3745-17-11(B)(5)(a)	
	OAC rule 3745-18-06(G)	
	OAC rule 3745-23-06(B)	

Applicable Emissions
Limitations/Control
Measures

exceed 20% percent opacity, as a six-minute average, except as provided by rule.

Oxides of nitrogen (NO_x) emissions from this emissions unit shall not exceed 37.54 pounds per hour.

The requirements of this rule also include compliance with OAC rule 3745-31-05(C), 3745-17-07, 3745-17-11, 3745-18-06, and 3745-23-06.

Combined NO_x emissions from emissions units B008, B010, B015 and B016 shall not exceed 1.6 tons per year based on a rolling annual summation.

Particulate emissions from this emissions unit shall not exceed 0.0697 lb/mmBtu. (See A.I.2.a below.).

Sulfur dioxide emissions from this generator shall not exceed 0.5 pound of sulfur dioxide per mmBtu of actual heat input.

See A.I.2.c below.

Visible particulate emissions from any stack serving this emissions unit shall not

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(C).
- 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

- The permittee shall burn only diesel fuel oil in this emissions unit.
- 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 MONTH(S) FOLLOWING PTI EFFECTIVE DATE	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

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Emissions Unit ID: B016

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 diesel fuel 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 diesel fuel tank that supplies emissions units B008, B010, B015 and B016 to allow for accurate determination of the diesel 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 NO_x 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 NO_x emitted per year based on a rolling 12 month summation from emissions units B008, B010, B015, and B016 combined.
3. For each shipment of diesel fuel oil received for burning in this emissions unit, the permittee shall maintain records of the total quantity of diesel fuel oil received, the permittee's or diesel fuel 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 diesel fuel oil supplier to collect a representative grab sample for each shipment of diesel fuel 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:

0.0697 lb/mmBtu particulate emissions from each generator

Applicable Compliance Method:

Compliance with this emission limitation shall be demonstrated by the emission factor

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Emissions Unit ID: B016

found in "Compilation of Air Pollutant Emission Factors", Table 3.4-2 (10/96) for diesel (0.0697 lb PM/mmBtu).

If required by the Ohio EPA, 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 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 Section A.III.2 and the table in Section A.II.2 of these terms and conditions.

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 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

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Emissions Unit ID: B016

20% 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 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B016 - Emergency Generator 5 - 11.73 mmBtu/hr (1676 horsepower and 1250 kW)		

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	
P025 - Large diameter lathe number 16 (natural gas fired) 1.26 MmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	OAC rule 3745-31-05(C)
		OAC rule 3745-17-07(A)
		OAC rule 3745-17-11(B)(1)

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Emissions Unit ID: P025

	Applicable Emissions <u>Limitations/Control Measures</u>	
OAC rule 3745-18-06(E)		See A.I.2.b
OAC rule 3745-21-08	NOx emissions shall not exceed 15.23	
	pounds per hour from this emissions	
OAC rule 3745-23-06(B)	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	
	the stack serving this emissions unit,	
	shall not exceed 2.4 tons per year.	
	The requirements of this rule also	
	include compliance with the	
	requirements of OAC rule	
	3745-31-05(C), 3745-17-07(A), 3745-	
	17-11(B), 3745-18-06, 3745-21-08,	
	and 3745-23-06(B).	
	NOx emissions shall not exceed 194.1	
	TPY based on rolling 12-month	
	summations for all production, repair	
	and bench lathes (emissions units	
	P025 and P032-P043), combined.	
	Visible particulate emissions from the	
	stack associated with this emissions	
	unit shall not exceed twenty percent	
	opacity, as a six- minute average,	
	except as provided by rule.	
	The total particulate emissions from	
	the stack serving 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).	
	See A.I.2.a.	
	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 NO_x emissions from this emissions unit to the stack; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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 (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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.

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Emissions Unit ID: P025

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 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x 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 (emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

The emission factor for NO_x 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 NO_x 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

stack 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 (emissions units 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 (emissions units 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 NO_x emitted from emissions units P025 and P032-P042, combined 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 the 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 the 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the 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 12-month rolling NOx emissions from all production, repair and bench lathes (emissions units P025, P032-P043).

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.

If the permittee demonstrates that all 6 production lathes rated at 1.26 MmBtu/hr (emissions units P025, and P032-P036) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an 12-month basis.

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

emission rates for particulate emissions and NO_x.

- 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 NO_x 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

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General Electric Co. - Willoughby Quartz

PTI Application: **02 12174**

Issued

Facility ID: **0243160086**

Emissions Unit ID: P025

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P025 - Large diameter lathe number 16 (natural gas fired) 1.26 MmBtu/hr; H2 pilot	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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P026 - Electric Crucible machine # 6, equipped with a primary dust collector, and sand feed systems, equipped with a primary dust collector, a secondary dust collector, including vacuum pumps, each with a mist eliminator, and the blockhouse vent. (P026)	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-31-05(C)
	OAC rule 3745-17-07(A)

	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-17-07(B)	Nitrogen oxides (NO _x) 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.d. and A.I.2.e.	month period. (See A.I.2.e.) 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)		The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3)
OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit (P026) alone, that are released through stack serving this emissions unit, shall not exceed 7.1 tons per year.	See A.I.2.c.
OAC rule 3745-21-08	Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average.	The total particulate emissions from this emissions unit, from all the stacks serving 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 3745-23-06(B)	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.)	See A.I.2.b.
	The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-21-08, and 3745-23-06(B).	See A.I.2.b.
	The combined NO _x emissions from emissions units P026 and P031, shall not exceed 31.8 tons per rolling, 12-	

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 dust collectors.

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the crucible machines shall be vented to the stack.
- 2.e** The maximum rate of NO_x 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

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Emissions Unit ID: P026

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:

$$[\text{number of crucibles produced of a particular size}] \times [\text{the emission factor for that size from the most recent stack test}] = \text{NOx emissions}$$

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 and are from the most recent stack tests as of the effective date of this permit to install at the Newark facility:

12 inch crucibles(510/520)	0.63	pound/crucible
12 inch crucibles(530)	0.98	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:

CALENDAR MONTH(S) FOLLOWING PTI EFFECTIVE DATE	TOTAL ALLOWABLE, CUMULATIVE NOx EMISSIONS (TPY) (P026 & P031, combined)
1-1	10.0
1-2	12.0
1-3	14.0
1-4	16.0
1-5	18.0
1-6	20.0
1-7	22.0
1-8	24.0
1-9	26.0
1-10	28.0
1-11	30.0
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 NO_x 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 particulate emission factors from this permit to install application and are from the most recent stack tests as of the effective date of this permit to install at the Newark facility:

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 or uncontrolled 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 dust collectors, 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 final 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

Issued

Emissions Unit ID: P026

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 may be calculated on a daily average basis based on daily production and operating hours, however, crucible production for each hour from this emissions unit shall not exceed the following:

<u>Crucible Size</u>	<u>Maximum Production</u> (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 this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 1 full quarter of observations with no visible emissions for this emissions unit.

3. The permittee shall properly operate and maintain equipment to monitor the pressure drop across each dust collector 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 dust collector 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 NO_x emission factor for each size of crucible produced;
 - c. the total NO_x 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 NO_x 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 NO_x emissions, in tons.
5. The permittee shall maintain daily records of the following information for this emissions unit:

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Emissions Unit ID: P026

- 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 quarterly pressure drop deviation (excursion) reports that identify all periods of time during which the pressure drop across each of the dust collectors did not comply with the allowable ranges specified in Section A.II.1.
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 NO_x 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 NO_x emission limitation for emissions units P026 and P031, combined.

5. The permittee shall submit annual reports that summarize the the total annual emissions of NO_x

emitted 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 calendar year.

6. The permittee shall submit quarterly deviation (excursion) reports that identify any exceedances of the hourly particulate emission limitation, through emission testing or calculated on a daily average basis.

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 the 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 the 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 by the Ohio EPA, emission testing shall be performed for each stack and dust collector 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

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Facility ID: 0243160086

Emissions Unit ID: P026

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:

$$\text{pounds per hour PE} = L + F + C + V$$

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.5 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 NO_x 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".

e. Emission Limitation

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General

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Issued: 12/30/2003

Emissions Unit ID: P026

NO_x 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 NO_x 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 NO_x emissions from P026 and P031.

The permittee shall calculate the rolling, 12-month NO_x emissions in accordance with the equation 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 dust collector outlet, including the blockhouse exhaust stack, and shall be conducted to demonstrate compliance with the allowable hourly mass emission rate for particulate emissions, the allowable hourly mass emission rate for NO_x emissions, where NO_x is or could be emitted, and to determine the NO_x emission factors for crucible production. For the purposes of emission testing, the blockhouse vent and vacuum pumps emissions shall be determined and 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 NO_x and to determine emission factors for NO_x:

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 unless otherwise specified or approved by the Northeast District Office of the Ohio EPA.

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Emissions Unit ID: P026

- 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P026 - Electric Crucible machine # 6, equipped with a primary dust collector, and sand feed systems, equipped with a primary dust collector, a secondary dust collector, including vacuum pumps, each with a mist eliminator, and the blockhouse vent. (P026)	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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
Po31 - Electric Crucible machine # 7, equipped with a primary dust collector, and sand feed systems, equipped with a primary dust collector, a secondary dust collector, including vacuum pumps, each with a mist eliminator, and the blockhouse vent. (P031)	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-31-05(C)

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Emissions Unit ID: P031

	<p style="text-align: center;"><u>Applicable Emissions Limitations/Control Measures</u></p>	
<p>OAC rule 3745-17-07(A)</p>	<p>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.)</p>	<p>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.</p>
<p>OAC rule 3745-17-07(B)</p>	<p>See A.I.2.d. and A.I.2.e.</p>	<p>The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3). See A.I.2.c.</p>
<p>OAC rule 3745-17-08(B)</p>	<p>The total particulate emissions from this emissions unit (P031) alone, that are released through stacks serving this emissions unit, shall not exceed 7.1 tons per year.</p>	<p>The total particulate emissions from this emissions unit, from all the stacks serving 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.</p>
<p>OAC rule 3745-17-11(B)(1)</p>	<p>Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average.</p>	<p>See A.I.2.b</p>
<p>OAC rule 3745-21-08</p>	<p>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.)</p>	<p>See A.I.2.b.</p>
<p>OAC rule 3745-23-06(B)</p>	<p>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).</p> <p>The combined NOx emissions from emissions units P026 and P031, shall not exceed 31.8 tons per rolling, 12-month period. (See A..I.2.e.)</p>	

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 dust collectors.

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may

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not be captured and vented to the stack. The NOx emissions from the cooling of the crucible machines shall be vented to the stack.

- 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:

$$[\text{number of crucibles produced of a particular size}] \times [\text{the emission factor for that size from the most recent stack test}] = \text{NOx emissions}$$

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)	0.98	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:

CALENDAR MONTH(S) FOLLOWING PTI EFFECTIVE DATE	TOTAL ALLOWABLE, CUMULATIVE NOx EMISSIONS (TPY) (P026 & P031, combined)
1-1	10.0
1-2	12.0
1-3	14.0
1-4	16.0
1-5	18.0
1-6	20.0
1-7	22.0
1-8	24.0

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1-9	26.0
1-10	28.0
1-11	30.0
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:

$$[\text{number of crucibles produced of a particular size}] \times [\text{the emission factor for that size from the most recent stack test}] = \text{PE}$$

The following are the current particulate emission factors from this permit to install application and are from the most recent stack tests as of the effective date of this permit to install at the Newark facility:

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 or uncontrolled 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 dust collectors, 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

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Emissions Unit ID: P031

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 final 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 may be calculated on a daily average basis based on daily production and operating hours, however, crucible production for each hour from this emissions unit shall not exceed the following:

<u>Crucible Size</u>	<u>Maximum Production</u> (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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 1 full quarter of observations with no visible emissions for this emissions unit.

3. The permittee shall properly operate and maintain equipment to monitor the pressure drop across each dust collector 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 dust collector 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 NO_x emission factor for each size of crucible produced;
 - c. the total NO_x 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 NO_x 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 NO_x 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:

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Emissions Unit ID: P031

- 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 quarterly pressure drop deviation (excursion) reports that identify all periods of time during which the pressure drop across each of the dust collectors did not comply with the allowable ranges specified in Section A.II.1.
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 NO_x 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 NO_x emission limitation for emissions units P026 and P031, combined.
5. The permittee shall submit annual reports that summarize the the total annual emissions of NO_x emitted 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 calendar year.

6. The permittee shall submit quarterly deviation (excursion) reports that identify any exceedances of the hourly particulate emission limitation, through emission testing or calculated on a daily average basis.

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 the 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 the 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 by the Ohio EPA, emission testing shall be performed for each stack and dust collector 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-

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Emissions Unit ID: P031

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:

$$\text{pounds per hour PE} = L + F + C + V$$

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.5 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 NO_x 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".

e. Emission Limitation

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General

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Issued: 12/30/2003

Emissions Unit ID: P031

NO_x 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 NO_x 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 12-month rolling NO_x 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 dust collector outlet, including the blockhouse exhaust stack, and shall be conducted to demonstrate compliance with the allowable hourly mass emission rate for particulate emissions, the allowable hourly mass emission rate for NO_x emissions, where NO_x is or could be emitted, and to determine the NO_x emission factors for crucible production. For the purposes of emission testing, the blockhouse vent and vacuum pumps emissions shall be determined and 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 NO_x and to determine emission factors for NO_x:

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 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

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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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P031 - Electric Crucible machine # 7, equipped with a primary dust collector, and sand feed systems, equipped with a primary dust collector, a secondary dust collector, including vacuum pumps, each with a mist eliminator, and the blockhouse vent. (P031)	none	none

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

none

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V. Testing Requirements

none

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General

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VI. Miscellaneous Requirements

none

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Emissions Unit ID: P006

	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-21-08	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.)	any stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
OAC rule 3745-23-06(B)		The emission limitation specified by this rule is less stringent than the emission limitation pursuant to OAC rule 3745-31-05(A)(3).
		See A.I.2.c.
	The total particulate emissions from this emissions unit alone, that are released through any stack serving this emissions unit, shall not exceed 2.4 tons per year.	The total particulate emissions resulting from this emissions unit from the stacks serving this emissions unit 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.
	Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average.	See A.I.2.b.
	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.)	See A.I.2.b.
	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).	
	Nitrogen oxides (NOx) emissions from this emissions unit shall not exceed 1.0 ton per rolling, 12-month period.	
	Visible particulate emissions from	

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 dust collector.

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 Install 02-13174.

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x 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:

CALENDAR MONTHS FOLLOWING PTI EFFECTIVE DATE	TOTAL CUMULATIVE ALLOWABLE CRUCIBLES PRODUCED (P006 only)
1-1	8800
1-2	10,424
1-3	12,048
1-4	13,673
1-5	15,297
1-6	16,921
1-7	18,546
1-8	20,170
1-9	21,794
1-10	23,419
1-11	25,043
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 dust collector) 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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 1 full quarter of observations with no visible emissions for this emissions unit.

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

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- this Permit to Install, the rolling, 12-month summation of the crucible production figures;
- c. the monthly total emissions of NO_x, in tons, calculated in accordance with Section A.III.4. ; 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 NO_x 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 NO_x emissions for this emissions unit for each calendar month.

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

NO_x 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 NO_x emission factor of 0.075 lb/unit is based on the 1996 stack tests at the Newark facility.

Monthly NO_x 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 NO_x 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 crucible production rate for this emissions unit; and
 - b. the total emissions of NO_x 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 calendar year.

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 the 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 the 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 the 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

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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 NO_x emission rate of 1.36 pounds per hour.
 - ii. The allowable rolling, 12-month NO_x emission rate of 1.0 ton.

Applicable Compliance Method

If required by the 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 NO_x 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 NO_x emissions, where NO_x is or could be emitted, and to determine a NO_x emission factor for crucible production. For the purposes of emission testing, the crucible forming enclosure vent and vacuum pumps emissions shall be determined and 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 NO_x and to determine the emission factor for NO_x:

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 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

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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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
<p>P006 - 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)</p> <p>The requirements of this permit supercede those requirements identified in Permit to Install number 02-535 issued on April 6, 1979.</p>	<p>none</p>	<p>none</p>

2. Additional Terms and Conditions

2.a

II. Operational Restrictions

none

III. Monitoring and/or Recordkeeping Requirements

none

IV. Reporting Requirements

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Emissions Unit ID: P006

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	
P032 - Large diameter lathe number 17 (natural gas fired) 1.26 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	OAC rule 3745-31-05(C)
		OAC rule 3745-17-07(A)
		OAC rule 3745-17-11(B)(1)
		OAC rule 3745-18-06(E)
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)

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Applicable Emissions
Limitations/Control Measures

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 the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.

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.
The total particulate emissions from the stack serving 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).

See A.I.2.a.

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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

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for all 11 production lathes (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x 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

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(emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \text{total natural gas usage (mmscf/month)} \times \frac{12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf}} \times \frac{1 \text{ ton}}{2000 \text{ lbs}}$$

The emission factor for NO_x 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 12-month rolling NO_x 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 stack 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 (emissions units 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 (emissions units 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 NO_x 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 the 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 the 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

NO_x 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the Ohio EPA, compliance with the hourly NO_x 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 NO_x emission limitations shall be

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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 12-month rolling NOx emissions from all production, repair and bench lathes (emissions unit P025, P032-P036).

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.

If the permittee demonstrates that all 6 production lathes rated at 1.26 MmBtu/hr (emissions units P025, and P032-P036) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

- 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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

Issued

Emissions Unit: (P033)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P033 - Large diameter lathe number 18 (natural gas fired) 1.26 MmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-31-05(C)
	OAC rule 3745-17-07(A)

	<u>Applicable Emissions Limitations/Control Measures</u>	
OAC rule 3745-17-11(B)(1)	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.)	by rule. The total particulate emissions from the stack serving 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). See A.I.2.a.
OAC rule 3745-18-06(E)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-	See A.I.2.b
OAC rule 3745-21-08	07(A), 3745-17-11(B), 3745-18-	
OAC rule 3745-23-06(B)	06, 3745-31-05(D), 3745-21-08, and 3745-23-06(B).	See A.I.2.b
	The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.	
	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.	
	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	

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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 (emissions units P025 and P032-P042):

Issued**Emissions Unit: (P033)**

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x 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 (emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

The emission factor for NO_x 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.

Issued**Emissions Unit: (P033)**

The heat content of natural gas = 1050 mmBtu/mmscf.

Monthly results shall be summed to obtain the annual and 12-month 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 stack 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 (emissions units 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 (emissions units 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 the 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 the 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

NO_x 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the Ohio EPA, compliance with the hourly NO_x 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 NO_x 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 12-month rolling NO_x 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 NO_x for this emissions unit in accordance with the following:

Issued**Emissions Unit: (P033)**

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

If the permittee demonstrates that all 6 production lathes rated at 1.26 mmBtu/hr (emissions units P025, and P032-P036) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

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

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General

PTI A1

Issued: 12/30/2003

Emissions Unit: (P033)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

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General Electric Co. - Willoughby Quartz

PTI Application: **02 12174**

Issued

Facility ID: **0243160086**

Emissions Unit: (P033)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	
P034 - Large diameter lathe number 19 (natural gas fired) 1.26 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	OAC rule 3745-17-07(A)
		OAC rule 3745-17-11(B)(1)
		OAC rule 3745-18-06(E)
		OAC rule 3745-21-08
		OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)	

Applicable Emissions Limitations/Control Measures

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(C), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).

The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.

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.

The total particulate emissions from the stack serving 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).

See A.I.2.a.

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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

Issued

Emissions Unit: (P034)

for all 11 production lathes (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

- 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 NO_x 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 (emissions units and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

The emission factor for NO_x 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 12-month rolling NO_x 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 stack serving this emissions unit; and

Issued**Emissions Unit: (P034)**

- 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 (emissions units 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 (emissions units 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 NO_x 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 the 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 the 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

NO_x 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the Ohio EPA, compliance with the hourly NO_x 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 NO_x 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 12-month rolling NO_x 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 NO_x for this emissions unit in accordance with the following:
 - a. The emission testing for NO_x and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NO_x shall be conducted annually.

If the permittee demonstrates that all 6 production lathes rated at 1.26 mmBtu/hr (emissions units P025, and P032-P036) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NO_x.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to

Issued**Emissions Unit: (P034)**

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	
P035- Large diameter lathe number 20 (natural gas fired) 1.26 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)	OAC rule 3745-31-05(C)
		OAC rule 3745-17-07(A)
		OAC rule 3745-17-11(B)(1)

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	Applicable Emissions <u>Limitations/Control Measures</u>	3745-17-11 (with a maximum process weight rate of 100 pounds per hour).
OAC rule 3745-18-06(E)		
OAC rule 3745-21-08	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.)	See A.I.2.a.
OAC rule 3745-23-06(B)	The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).	See A.I.2.b.
	The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.	See A.I.2.b.
	NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.	
	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.	
	The total particulate emissions from the stack serving this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule	

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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

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for all 11 production lathes (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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

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may reduce the frequency of visual observations for this emissions unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 (emissions units P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NOx, in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

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 stack 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 (emissions units 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 (emissions units 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 NO_x 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 the 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

Emissions Unit: (P035)**Applicable Compliance Method**

If required by the 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the 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 12-month 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.

If the permittee demonstrates that all 6 production lathes rated at 1.26 mmBtu/hr (emissions units P025, and P032-P036) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.
 - 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 NO_x 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

Issued

Emissions Unit: (P035)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

Applicable Emissions
Limitations/Control Measures

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 rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).

The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.

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.

The total particulate emissions from the stack serving 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).

See A.I.2.a.

See A.I.2.a.

See A.I.2.b.

See A.I.2.b

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Emissions Unit: (P036)

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 stack. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

2. 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 (emissions units P025 and P032-P042):

MONTH(S)	MAXIMUM ALLOWABLE
FOLLOWING	CUMULATIVE FUEL
PTI EFFECTIVE	USAGE

DATE	(mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit's visual observations indicate no visible emissions; and

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- 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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

- 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 NO_x 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 (emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

The emission factor for NO_x 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 NO_x 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 stack 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 (emissions units 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 (emissions units 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 NO_x 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.

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Facility ID: **0243160086**

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Applicable Compliance Method

If required by the 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 the 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

NO_x 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the Ohio EPA, compliance with the hourly NO_x 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 NO_x 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 12-month rolling NO_x 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 NO_x for this emissions unit in accordance with the following:

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

If the permittee demonstrates that all 6 production lathes rated at 1.26 MmBtu/hr (emissions units P025, and P032-P036) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

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

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Emissions Unit: (P036)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

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Emissions Unit: (P036)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P037- Large diameter lathe number 22 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)
	OAC rule 3745-17-11(B)(1)
	OAC rule 3745-18-06(E)
	OAC rule 3745-21-08
	OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)

General

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Issued: 12/30/2003

Emissions Unit: (P037)

Applicable Emissions
Limitations/Control Measures

NO_x 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 rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).

The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NO_x emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.

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.

The total particulate emissions from the stack serving 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).

See A.I.2.a.

See A.I.2.b.

See A.I.2.b

Issued

Emissions Unit: (P037)

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 stack. The NOx emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.

2. 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 (emissions units P025 and P032-P042):

MONTH(S)	MAXIMUM ALLOWABLE
FOLLOWING	CUMULATIVE FUEL
PTI EFFECTIVE	USAGE

DATE	(mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit's visual observations indicate no visible emissions; and

Issued**Emissions Unit: (P037)**

- 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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

- 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 NO_x 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 (emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton}/2000 \text{ lbs}}$$

The emission factor for NO_x 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 NO_x 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 stack 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 (emissions units 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 (emissions units 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 NO_x 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 the 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 the 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

Issued**Emissions Unit: (P037)**

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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the 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 12-month 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.

If the permittee demonstrates that all 6 production lathes rated at 2.21 mmBtu/hr (emissions units P037-P042) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

- 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

Issued

Emissions Unit: (P037)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P038- Large diameter lathe number 23 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)
	OAC rule 3745-17-11(B)(1)
	OAC rule 3745-18-06(E)
	OAC rule 3745-21-08
	OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)

Applicable Emissions Limitations/Control Measures

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 rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).

The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.

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.

The total particulate emissions from the stack serving 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).

See A.I.2.a.

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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

Issued**Emissions Unit: (P038)**

for all 11 production lathes (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x 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

Issued**Emissions Unit: (P038)**

(emissions units P025 and P032-P042), combined.

Total NOx monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NOx, in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

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 stack 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 (emissions units 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 (emissions units 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 the 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 the 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

NO_x 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the Ohio EPA, compliance with the hourly NO_x 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 NO_x emission limitations shall be

Issued**Emissions Unit: (P038)**

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 12-month 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.

If the permittee demonstrates that all 6 production lathes rated at 2.21mmBtu/hr (emissions units P037-P042) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

- 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.

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General

PTI A₁

Issued: 12/30/2003

Emissions Unit: (P038)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

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General Electric Co. - Willoughby Quartz

PTI Application: **02 12174**

Issued

Facility ID: **0243160086**

Emissions Unit: (P038)

None

Applicable Emissions
Limitations/Control Measures

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 rule 3745-31-05(C) , 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).

The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.

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.

The total particulate emissions from the stack serving 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).

See A.I.2.a.

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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

Issued

Emissions Unit: (P039)

for all 11 production lathes (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x 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

(emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

The emission factor for NO_x 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 NO_x 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 (emissions units 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 (emissions units 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 NO_x emitted from emissions units P025 and P032-P042 for the previous calendar

Emissions Unit: (P039)

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 the 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 the 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the 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 12-month 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.

If the permittee demonstrates that all 6 production lathes rated at 2.21mmBtu/hr (emissions units P037-P042) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

- 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.

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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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

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Emissions Unit: (P039)

None

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Emissions Unit: (P040)

Applicable Emissions Limitations/Control Measures

3745-17-11 (with a maximum process weight rate of 100 pounds per hour).

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.)

See A.I.2.a.

See A.I.2.b.

See A.I.2.b.

The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).

The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.

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.

The total particulate emissions from the stack serving this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule

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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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

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Emissions Unit: (P040)

for all 11 production lathes (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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.

Issued**Emissions Unit: (P040)****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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x 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 (emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NOx, in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

The emission factor for NO_x 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 NO_x 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 stack 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 (emissions units 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 (emissions units 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 NO_x 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

Emissions Unit: (P040)

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 the 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 the 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the 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 12-month 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 NO_x for this emissions unit in accordance with the following:

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

If the permittee demonstrates that all 6 production lathes rated at 2.21mmBtu/hr (emissions units P037-P042) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

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

Issued**Emissions Unit: (P040)**

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

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Emissions Unit: (P040)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P041- Large diameter lathe number 26 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)
	OAC rule 3745-17-11(B)(1)
	OAC rule 3745-18-06(E)
	OAC rule 3745-21-08
	OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)

Applicable Emissions
Limitations/Control Measures

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 rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).

The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes (emissions units P025 and P032-P043), combined.

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.

The total particulate emissions from the stack serving 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).

See A.I.2.a.

See A.I.2.b.

See A.I.2.b.

Issued**Emissions Unit: (P041)****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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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 (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE
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DATE	(mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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.

Issued**Emissions Unit: (P041)****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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x 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 (emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NOx, in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

The emission factor for NO_x 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 NO_x 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 stack 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 (emissions units 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 (emissions units 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 NO_x 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

Emissions Unit: (P041)

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 the 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 the 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the 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 12-month 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 NO_x for this emissions unit in accordance with the following:

- a. The emission testing for NO_x and particulate emissions shall be conducted within 12 months after the effective date of this Permit to Install. Thereafter, emission testing for NO_x shall be conducted annually.
- b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NO_x.

If the permittee demonstrates that all 6 production lathes rated at 2.21mmBtu/hr (emissions units P037-P042) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

- 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 NO_x 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.

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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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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

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Emissions Unit: (P041)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
P042- Large diameter lathe number 27 (natural gas fired) 2.21 mmBtu/hr; H2 pilot	OAC rule 3745-31-05(A)(3)
	OAC rule 3745-17-07(A)
	OAC rule 3745-17-11(B)(1)
	OAC rule 3745-18-06(E)
	OAC rule 3745-21-08
	OAC rule 3745-23-06(B)
	OAC rule 3745-31-05(C)

Applicable Emissions
Limitations/Control Measures

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 rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).

The total particulate emissions from the stack serving this emissions unit, shall not exceed 2.4 tons per year.

NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all production lathes, repair and bench (emissions units P025 and P032-P043), combined.

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.

The total particulate emissions from the stack serving 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).

See A.I.2.a.

See A.I.2.b.

See A.I.2.b.

Issued**Emissions Unit: (P042)****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 NO_x emissions from this emissions unit to the stacks; however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on this lathe shall be vented to the stack.

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

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 (emissions units P025 and P032-P042), combined, shall not exceed 30.29 million standard cubic feet of natural gas based on rolling, 12-month summations.
2. 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 (emissions units P025 and P032-P042):

MONTH(S) FOLLOWING PTI EFFECTIVE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE
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Emissions Unit: (P042)

DATE	(mmscf) (natural gas)
1-1	10.0
1-2	11.8
1-3	13.6
1-4	15.5
1-5	17.3
1-6	19.1
1-7	21.0
1-8	22.8
1-9	24.6
1-10	26.5
1-11	28.4
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 unit from daily to weekly readings if the following conditions are met:

- a. for 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x 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

Issued**Emissions Unit: (P042)**

(emissions units P025 and P032-P042), combined.

Total NO_x monthly emissions, in tons, resulting from the natural gas usage in all production lathes (emissions units P025 and P032-P042) (16-27), combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \frac{\text{total natural gas usage (mmscf/month)} \times 12.09 \text{ lbs/mmBtu}}{1050 \text{ mmBtu/mmscf} \times 1 \text{ ton/2000 lbs}}$$

The emission factor for NO_x 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 NO_x 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 stack 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 (emissions units 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 (emissions units 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 NO_x emitted from emissions units P025 and P032-P042, combined 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 the 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 the 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

NO_x 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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the Ohio EPA, compliance with the hourly NO_x 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 NO_x emission limitations shall be

Issued**Emissions Unit: (P042)**

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 12-month 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.

If the permittee demonstrates that all 6 production lathes rated at 2.21mmBtu/hr (emissions units P037-P042) are essentially identical in operation, size and capacity, configuration and product line, in which case, with approval from the Ohio EPA, the permittee shall test one representative unit, at or near maximum capacity, on an annual basis.

- 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.

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Emissions Unit: (P042)

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

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Emissions Unit: (P042)

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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>
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)
	OAC rule 3745-31-05(C)
	OAC rule 3745-17-07(A)

	Applicable Emissions <u>Limitations/Control Measures</u>	
OAC rule 3745-17-07(B)		NOx emissions shall not exceed 194.1 TPY based on rolling 12-month summations for all
OAC rule 3745-17-08(B)	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; and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, P025 and P032-P043, combined. (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.)	production, repair and bench lathes, emissions units P025 and P032-P043, combined.
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)		Visible particulate fugitive emissions
OAC rule 3745-21-08		from this emissions unit shall not exceed 20% opacity, as a three minute average.
OAC rule 3745-23-06(B)		
	The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-05(C), 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).	See A.I.2.g. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	The total particulate emissions from all lathes comprising this emissions unit, shall not exceed 1.85 pounds per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 600 pounds per hour for all lathes, combined).	See A.I.2.a. See A.I.2.b.
	The total particulate emissions from all lathes comprising this emissions unit, shall not exceed 8.1 tons per year.	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.** The four repair lathes that are part of this emissions unit are each vented to a stack, and the remaining 2 bench lathes vent to atmosphere.
- 2.d** It is the permittee's normal practice, for the 4 repair lathes, to vent all of the NO_x emissions from this emissions unit to the stacks, however, it is understood that a small number of molecules of NO_x may not be captured and vented to the stack. The NO_x emissions from the cooling of the tubes produced on these lathes shall be vented to the stack.
- 2.e** All particulate emissions from the 4 repair lathes shall be vented to the stacks.
- 2.f** This emissions unit is capable of burning only hydrogen.
- 2.g.** 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:

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- i. the use of adequate hooding or equivalent capture devices for the use of all equipment and operations that comprise the emissions unit.

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

II Operational Restrictions

- 1. The maximum annual fuel usage for this emissions unit shall not exceed 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.
- 2. 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 hydrogen usage levels for all the combined equipment described above:

MONTH(S) FOLLOWING PTI EFFECTIVE DATE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (mmscf) (hydrogen)
.	
1-1	0.43
1-2	0.50
1-3	0.58
1-4	0.66
1-5	0.74
1-6	0.82
1-7	0.89
1-8	0.97
1-9	1.05
1-10	1.13
1-11	1.21
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;

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- 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 45 days this emissions unit'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 for this emissions unit if any visible emissions are observed. The permittee may again reduce the frequency of visual observations from daily to weekly after obtaining 45 consecutive days of observations with no visible emissions for this emissions unit.

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 NO_x emissions from this emissions unit;
 - d. the rolling 12-month NO_x emissions from all production lathes (emissions units P025 and P032-P042) combined; and
 - e. the rolling 12-month NO_x emissions from all production lathes, and repair and bench lathes (emissions units P025, P032-P043) combined.

Also, during the first 12 calendar months of operation, after the effective date of this Permit to Install, the permittee shall record the cumulative hydrogen fuel usage for this emissions unit for each calendar month.

Total NO_x monthly emissions, in tons, resulting from hydrogen usage from the 2 bench and 4 repair lathes, combined, shall be calculated using the following equation:

$$\text{NO}_x, \text{ in tons} = \text{total natural gas usage mmscf/month} \times 8.53 \text{ lbs/mmBtu} \times \frac{1}{325 \text{ mmBtu/mmscf}} \times 1 \text{ ton/2000 lbs}$$

where:

The emission factor for NO_x, 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 NO_x 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 stack 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 NO_x emitted from emissions units P025 and P032-P043, combined 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

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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 the 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

The total particulate emissions from all lathes comprising this emissions unit, shall not exceed 1.85 pounds per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 600 pounds per hour for all lathes, combined).

Applicable Compliance Method

If required by the Ohio EPA, for the repair lathes, 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. If required, for the bench lathes, compliance with the hourly particulate emission limit above shall be determined by material balance or some other method approved by Ohio EPA.

Because the annual particulate limit was established by multiplying the short-term limit of 1.85 lbs/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, emissions units P025, P032-P043 combined.

Applicable Compliance Method

If required by the 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 12-month rolling NOx emissions from all lathes.

d. Emission Limitation

20% opacity, as a three minute average, for visible particulate fugitive emissions

Applicable Compliance Method

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

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

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

Since the repair and bench lathes are used only intermittently, the permittee may test the worst case emitting lathe based on, size and capacity, configuration and product line, at or near maximum capacity, on an annual basis with approval from the Ohio EPA, if the permittee demonstrates that it is the largest lathe of all that comprise this emissions unit and, it generates worst case emissions

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

- 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 NO_x 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

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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.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
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)	none	none

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

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General

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VI Miscellaneous Requirements

None