



State of Ohio Environmental Protection Agency

Street Address:

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

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

Mailing Address:

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

**RE: DRAFT PERMIT TO INSTALL
LICKING COUNTY
Application No: 01-08046**

CERTIFIED MAIL

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

DATE: 11/21/2000

G E Quartz Inc
Lisha Kronmann
611 ONeill Dr SE
Hebron, OH 43025

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

A Permit to Install may be issued in proposed or final form based on the draft action, any written public comments received within 30 days of the public notice, or record of a public meeting if one is held. You will be notified in writing of a scheduled public meeting. Upon issuance of a final Permit to Install a fee of **\$5200** will be due. Please do not submit any payment now.

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

Very truly yours,

Thomas G. Rigo
Field Operations and Permit Section
Division of Air Pollution Control



**Permit To Install
Terms and Conditions**

**Issue Date: To be entered upon final issuance
Effective Date: To be entered upon final issuance**

DRAFT PERMIT TO INSTALL 01-08046

Application Number: 01-08046

APS Premise Number: 0145000213

Permit Fee: **To be entered upon final issuance**

Name of Facility: G E Quartz Inc

Person to Contact: Lisha Kronmann

Address: 611 ONeill Dr SE
Hebron, OH 43025

Location of proposed air contaminant source(s) [emissions unit(s)]:

**611 ONeill Dr SE
Hebron, Ohio**

Description of proposed emissions unit(s):

This permit to install will cover the modification of 26 emissions units at the facility - (2) high purity crucible machines, (4) arc fusion machines and (20) large diameter lathes.

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.11 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 thirty (30) days after commencing operation of the source(s) covered by this permit.

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 Related to Monitoring and Recordkeeping Requirements

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
- b. Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

3. Permit Transfers

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

4. 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.

5. 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.

6. 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 are inadequate 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 prove to be inadequate or cannot meet applicable standards.

7. 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.

8. 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).

9. 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.

10. 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.

11. 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>
Nitrogen Oxide	228.8
Particulate	48.63

Part II - FACILITY SPECIFIC TERMS AND CONDITIONS**A. State and Federally Enforceable Permit To Install Facility Specific Terms and Conditions**

1. Pursuant to OAC rule 3745-31-05(A), the permittee shall control process nitrogen oxide emissions from B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 by using a selective catalytic reduction unit.

2. **Operational Restriction**

The maximum process nitrogen oxide emissions for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 shall not exceed 210.7 tons per year, based upon a rolling, 12-month summation of continuous emission monitoring readouts. To ensure enforceability during the first twelve calendar months of operation after issuance of this permit to install, the emissions units listed above shall not exceed the following process nitrogen oxide emission limitations:

<u>Month</u>	<u>Total Process NO_x emissions (Tons)</u>
1	70.0
1-2	82.8
1-3	95.6
1-4	108.4
1-5	121.2
1-6	134
1-7	146.8
1-8	159.6
1-9	172.4
1-10	185.2
1-11	198
1-12	210.7

After the first twelve calendar months of operation following the issuance of this permit, compliance with the annual process nitrogen oxide emission limitation shall be used upon rolling, 12-month summation of the process nitrogen oxide emissions.

3. **Monitoring and Recordkeeping Requirements**

- a. The permittee shall maintain monthly records of the following information:
 - i. Beginning after the first 12 calendar months of operation following the issuance of this permit, the rolling, 12-month summation of process nitrogen oxide emissions;
 - ii. During the first 12 calendar months of operation following the issuance of this permit, the cumulative process nitrogen oxide emissions for each calendar month;

- b. The permittee shall operate and maintain existing equipment to continuously monitor and record **NO_x emissions** from emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 in units of the applicable standard. Such continuous monitoring and recording equipment shall comply with the requirements specified in 40 CFR Part 60.13.

The permittee shall maintain records of all data obtained by the continuous **NO_x** monitoring system including, but not limited to, parts per million **NO_x** on an instantaneous (one-minute) basis, emissions of **NO_x** in units of the applicable standard in the appropriate averaging period (e.g., hourly, hourly rolling, 3-hour, daily, 30-day rolling, etc.), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

4. Statement of Certification

Prior to the installation of the continuous **NO_x** monitoring system, the permittee shall submit information detailing the proposed location of the sampling site in accordance with the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2 for approval by the Ohio EPA, Central Office.

Within 60 days of the effective date of this permit, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2. Personnel from the appropriate Ohio EPA District Office or local air agency shall be notified 30 days prior to initiation of the applicable tests and shall be permitted to examine equipment and witness the certification tests. In accordance with OAC rule 3745-15-04, all copies of the test results shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days after the test is completed. Copies of the test results shall be sent to the appropriate Ohio EPA District Office or local air agency and the Ohio EPA, Central Office. Certification of the continuous **NO_x** monitoring system shall be granted upon determination by the Ohio EPA, Central Office that the system meets all requirements of ORC section 3704.03(I) and 40 CFR Part 60, Appendix B, Performance Specification 2.

5. Reporting Requirements

- a. The permittee shall submit deviation (excursion) reports which identify all exceedances of the rolling, 12-month process nitrogen oxide emissions and, for the first 12 calendar months of operation following the issuance of this permit, all exceedances of the maximum allowable process nitrogen oxide emissions levels.

These reports are due by the dates described in Part 1 - General Terms and Conditions of this permit under A.I.

- b. The permittee shall also submit annual reports which specify total process nitrogen oxide emissions from emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 combined for the previous calendar year. These reports shall be submitted by January 31 of each year.

c. Data Reporting

Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031 and 40 CFR Parts 60.7 and 60.13(h), the permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting the date, commencement and completion times, duration, magnitude, reason (if known), and corrective actions taken (if any), of all instances of **NO_x** values in excess of the applicable limits specified in 40 CFR Part 76 or any limitations specified in the terms and conditions of this permit. These reports shall also contain the total **NO_x** emissions for the calendar quarter (in tons).

The permittee shall submit reports within 30 days following the end of each calendar quarter to the appropriate Ohio EPA District Office or local air agency documenting any continuous **NO_x** monitoring system downtime while the emissions units were on line (date, time, duration and reason) along with any corrective action(s) taken. The permittee shall provide the emissions units operating time during the reporting period and the date, time, reason and corrective action(s) taken for each time period of emissions unit and control equipment malfunctions. The total operating time of the emissions units and the total operating time of the analyzer while the emissions units were on line shall also be included in the quarterly report.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect along with the emissions units operating time during the reporting period and the date, time, reason, and corrective action(s) taken for each time period of emissions unit, control equipment, and/or monitoring system malfunctions. The total operating time of the emissions units and the total operating time of the analyzer while the emissions units were on line also shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 30, April 30, July 30, and October 30 of each year and shall address the data obtained during the previous calendar quarter.

d. Electronic Data Reporting, Summary Form

Pursuant to OAC rules 3745-15-04, 3745-35-02, and ORC sections 3704.03(I) and 3704.031, the permittee shall submit a summary of the excess emission report pursuant to 40 CFR Part 60.7. The summary shall be submitted to the appropriate Ohio EPA District Office or local air agency within 30 days following the end of each calendar quarter in a manner prescribed by the Director.

6. Quality Assurance/Quality Control

Within 180 days of the effective date of this permit, the permittee shall develop a written quality assurance/quality control plan for the continuous **NO_x** monitoring system designed to ensure continuous valid and representative readings of **NO_x** emissions in units of the applicable standard. The plan shall follow the requirements of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the continuous **NO_x** monitoring system must be kept on site and available for inspection during regular office hours.

7. Testing Requirements

a. Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

i. Emission Limitation: 210.7 tpy process nitrogen oxide emissions from B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

Applicable Compliance Method:

The permittee shall demonstrate compliance with this emission limitation by the use of a continuous **NO_x** monitoring system. To ensure the validity of readouts of this monitoring system, the CEM for process **NO_x** will monitoring system will certify compliance annually.

b. Initial SCR Testing Requirements

The permittee shall conduct, or have conducted, emission testing for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 in accordance with the following requirements:

- i. The emission testing shall be conducted within 3 months after issuance of the permit.
- ii. The emission testing shall be conducted to demonstrate compliance with the **hourly limits for representative emissions units listed in this permit.**
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): Methods 1- 4, 7E. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- iv. The test(s) shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the appropriate Ohio EPA District Office or local air agency. 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 District Office's or local air agency's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA District Office or 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.

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 appropriate Ohio EPA District Office or local air agency 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 appropriate Ohio EPA District Office or local air agency.

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 - Large Diameter Lathe #1 - 3.78 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.5 tons per year.
		Process nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.1 pound per hour and 0.36 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B001 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 85%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 6.84 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (3.78) by the emission factor 12.06 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.1 lb/hr fugitive nitrogen oxide
0.36 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.50 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit by the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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 - Large Diameter Lathe #1 - 3.78 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B002 - Large Diameter Lathe #2 - 3.78 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.5 tons per year.
		Process nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.1 pound per hour and 0.36 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B002 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 85%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 6.84 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (3.78) by the emission factor 12.06 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.1 lb/hr fugitive nitrogen oxide
0.36 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.50 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit by the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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 - Large Diameter Lathe #2 - 3.78 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B003 - Large Diameter Lathe #3 - 3.78 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.5 tons per year.
		Process nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.1 pound per hour and 0.36 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B003 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 85%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 6.84 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (3.78) by the emission factor 12.06 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.1 lb/hr fugitive nitrogen oxide
0.36 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

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>
B003 - Large Diameter Lathe #3 - 3.78 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B004 - Large Diameter Lathe #4 - 3.78 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.5 tons per year.
		Process nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.1 pound per hour and 0.36 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B004 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 85%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 6.84 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (3.78) by the emission factor 12.06 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.1 lb/hr fugitive nitrogen oxide
0.36 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.50 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit by the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
B004 - Large Diameter Lathe #4 - 3.78 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B005 - Large Diameter Lathe #5 - 3.78 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.5 tons per year.
		Process nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.1 pound per hour and 0.36 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B005 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 85%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 6.84 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (3.78) by the emission factor 12.06 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.1 lb/hr fugitive nitrogen oxide
0.36 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

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>
B005 - Large Diameter Lathe #5 - 3.78 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B006 - Large Diameter Lathe #6 - 3.78 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.5 tons per year.
		Process nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.1 pound per hour and 0.36 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B006 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 85%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 6.84 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (3.78) by the emission factor 12.06 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.1 lb/hr fugitive nitrogen oxide
0.36 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (3.78) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.50 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit by the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
B006 - Large Diameter Lathe #6 - 3.78 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B023 - Large Diameter Lathe #10 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B023 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.08 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.6 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
B023 - Large Diameter Lathe #10 - 5.04 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B024 - Large Diameter Lathe #11 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B024 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.08 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

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>
B024 - Large Diameter Lathe #11 - 5.04 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B025 - Large Diameter Lathe #12 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B025 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.08 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.6 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
B025 - Large Diameter Lathe #12 - 5.04 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B026 - Large Diameter Lathe #13 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3). hour process weight input.
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B026 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.08 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.6 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
B026 - Large Diameter Lathe #13 - 5.04 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B027 - Large Diameter Lathe #14 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B027 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.08 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.6 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
B027 - Large Diameter Lathe #14 - 5.04 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B028 - Large Diameter Lathe #16 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B028 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.08 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

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>
B028 - Large Diameter Lathe #16 - 5.04 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B029 - Large Diameter Lathe #17 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B029 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.082 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

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>
B029 - Large Diameter Lathe #17 - 5.04 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B030 - Large Diameter Lathe #18 - 6.3 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.63 tons per year.
		Process nitrogen oxide emissions shall not exceed 7.34 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.1 pound per hour and 0.42 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B030 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 93%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 7.34 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (6.3) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.1 lb/hr fugitive nitrogen oxide
0.42 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (6.3) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (6.3) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 8147. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.63 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation, 8147. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
B030 - Large Diameter Lathe #18 - 6.3 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B031 - Large Diameter Lathe #15 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from B031 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.08 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.6 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
B031 - Large Diameter Lathe #15 - 5.04 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P009 - High Purity Crucible Machine #3	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 3.3 pounds per hour. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-11(B)(1).
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.74 pounds per hour and 3.25 tons per year.
	OAC rule 3745-23-06	The requirements specified in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total nitrogen oxide emissions shall not exceed 18.1 tons per year for emissions units P008, P009 and P025 as rolling 12-month summation

2. **Additional Terms and Conditions**

- 2.a Permittee shall only burn natural gas.

II. Operational Restrictions

1. The maximum production for P008, P009 and P025 shall not exceed 18.1 tons of nitrogen oxide and 75,416 crucibles, based upon a rolling, 12-month summation of the crucible production figures. To ensure enforceability during the first twelve calendar months of operation after issuance of this

permit to install, emissions units P008, P009 and P025 shall not exceed the following nitrogen oxide emission limitations and crucible production limitations:

Maximum Allowable Cumulative Emission(s) and Production For:

Month(s)	Nitrogen Oxide (lbs)	Crucible Production (#)
1	12,000	25,000
1-2	14,200	29,538
1-3	16,400	34,166
1-4	18,600	38,750
1-5	20,800	43,333
1-6	23,000	47,916
1-7	25,200	52,500
1-8	27,400	57,083
1-9	29,600	61,666
1-10	31,800	66,250
1-11	34,000	70,833
1-12	36,200	75,416

After the first twelve calendar months of operation following the issuance of this permit, compliance with the annual nitrogen oxide emission limitation and crucible production limitation shall be based upon rolling, 12-month summations of the nitrogen oxide emissions and crucible production.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information:
 - a. the total number of crucibles produced in P008, P009 and P025;
 - b. the total uncontrolled nitrogen oxide emissions, in pounds per month which are calculated using the following formula:

$$\{\text{number of crucibles produced monthly in P008}\} * \{1.02 \text{ lbs/crucible}\} + \{\text{number of crucibles produced monthly in P025}\} * \{1.02 \text{ lbs/crucible}\} + \{\text{number of crucibles produced monthly in P009}\} * \{0.48 \text{ lb/crucible}\}$$
 - c. beginning after the first 12 calendar months of operation following the issuance of this permit, the rolling, 12-month summation of nitrogen oxide emissions and number of crucibles produced; and
 - d. during the first 12 calendar months of operation following the issuance of this permit, the cumulative nitrogen oxide emissions and number of crucibles produced for each calendar month.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports which identify all exceedances of the rolling, 12-month crucible production and nitrogen oxide emissions and, for the first 12 calendar months of operation following the issuance of this permit, all exceedances of the maximum allowable crucible production and nitrogen oxide emissions levels.

These reports are due by the dates described in Part 1 - General Terms and Conditions of this permit under A.I.

2. The permittee shall also submit annual reports which specify total nitrogen oxide emissions and total crucible production from emissions units P008, P009 and P025 combined for the previous calendar year. These reports shall be submitted by January 31 of each year.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.I. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 2.88 lbs/hr nitrogen oxides
18.1 tons/yr nitrogen oxides

Applicable Compliance Method:

For the pound per hour limitation, multiply the total number of crucibles produced in emissions units P008 daily by the emission factor 1.02 lbs/crucible (derived from stack test performed by GE Newark Quartz Plant in 3/98) and then divide by the daily hours of operation.

For the ton per year limitation, multiply the total number of crucibles produced in emissions units P008 and P025 in a year by the emission factor 1.02 lbs/crucible (derived from stack test) and total number of crucibles produced in emissions units P009 in a year by the emission factor 0.48 lb/crucible (derived from stack test). Convert to tons by dividing by 2000.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: visible emissions shall not exceed 20% opacity, as a six-minute average

Applicable Compliance Method:

Compliance shall be determined through visible emissions observations performed in accordance with 40CFRPart60, Method 9 and the procedures in OAC rule 3745-17-03(A)(1).

3. Emission Limitation: 0.74 lbs/hr particulate emissions
3.25 tons/yr particulate emissions

G E Quartz Inc

PTI Application: 01-08046

Issued: To be entered upon final issuance

Facility ID: 0145000213

Emissions Unit ID: P009

Applicable Compliance Method:

A maximum particulate emission rate of 0.017 lb/hr was determined in a stack test performed 8/99 at the GE Newark Quartz Plant. For the ton per year limitation, multiply the hourly emission rate derived from the stack test by the maximum hours in a year (8760).

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1 - 5.

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>
P009 - High Purity Crucible Machine #3		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P010: P-14 Arc Fusion Machine #4	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.6 pound per hour and 2.54 tons per year.
		Process nitrogen oxide emissions shall not exceed 3.59 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.18 pound per hour and 0.78 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P010 by using a selective catalytic reduction unit with at least a 85% control efficiency.
- 2.b** Permittee shall control particulate emissions from P010 using a Spencer System with at least a 99% control efficiency, a dry electrostatic precipitator with at least a 90% control efficiency, a American Air Filter with at least a 99% control efficiency and a Torit baghouse with at least a 99.9% control efficiency.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information for P010:
- the number of crucibles produced per emissions unit;
 - monthly hours of operation.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 3.78 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the total number of crucibles produced in emissions unit P010 monthly by the emission factor 2.4 lbs/crucible (derived from a stack test performed by GE Newark Quartz in 12/96), then divide by the monthly hours of operation and multiply by the uncontrolled factor of the SCR unit (0.15).

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

2. Emission Limitation: 0.18 lb/hr fugitive nitrogen oxide
0.78 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the total number of crucibles produced in emissions unit P010 monthly by the emission factor 0.0179 lb/crucible (derived from a stack test performed by GE Newark Quartz in 12/96), then divide by the monthly hours of operation.

For the ton per year limitation, multiply the total number of crucibles produced in emissions unit P010 annually by the emission factor 0.0179 lb/crucible (derived from a stack test performed by GE Newark Quartz in 12/96), then divide by the annual hours of operation.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

- 3. Emission Limitation: visible emissions shall not exceed 20% opacity, as a six-minute average

Applicable Compliance Method:

Compliance shall be determined through visible emissions observations performed in accordance with 40CFRPart60, Method 9 and the procedures in OAC rule 3745-17-03(A)(1).

- 4. Emission Limitation: 0.6 lb/hr particulate emissions
2.54 tons/yr particulate emissions

Applicable Compliance Method:

Total hourly particulate emissions = L + F + P + Cl + V

L	=	0.0005 lb/hr	=	loading of sand into crucible pots
F	=	0.37 lb/hr	=	crucible formation through electric arc fusion
P	=	0.00017 lb/hr	=	crucible pop-off hood
C	=	0.1125 lb/hr	=	hot sand clean out
V	=	0.1 lb/hr	=	vacuum maintains sand in pot during preparation and fusion

To calculate L,

multiply the hourly process weight rate (484 lbs/hr) by the transfer emission factor (0.174 lb/ton) and the uncontrolled factor of the Spencer System (0.01) and then divide by 2000 to convert to pound(s).

The transfer emission factor was derived from using an AP-42 emission factor from Table 11.12-2 for sand and aggregate transfer to elevated bin for concrete batching (0.029 lb/ton). This factor was multiplied by the number of transfer points (6) which are
(2) sand loading hopper to crucible furnace cart
(2) crucible cutting and reclaim station
(2) hot sand clean out fines

To calculate F,

multiply the maximum, hourly crucible production (10) by the particulate emission factor of 0.37 lb/crucible (derived from a stack test performed in 12/96) and the uncontrolled factor of the electrostatic precipitator (0.1).

To calculate P,

multiply the hourly process weight rate (484 lbs/hr) by the transfer emission factor (0.058 lb/ton) and the uncontrolled factor of the American Air Filter (0.01) and then divide by 2000 to convert to pound(s).

The transfer emission factor was derived from using an AP-42 emission factor from Table 11.12-2 for sand and aggregate transfer to elevated bin for concrete batching (0.029 lb/ton). This factor was multiplied by the number of transfer points 2 - crucible pop-off hoods.

To calculate C,

multiply the maximum hot sand dumped per hour (150 lbs/hr) by the collected emission factor (0.75 lb/lb) and the uncontrolled factor of the Torit baghouse (0.001).

For collected emission factor, the company estimates that 75% of the hot sand recovered goes to the baghouse while the other 25% remains in the crucible processing area.

To calculate V,

company assumes all makeup oil addition is released as particulate; approximately 0.05 lb/hr of oil is added to each of the two pumps.

Annual particulate emissions are calculated by summing maximum L + F + P+ C + V values and then multiplying by 8760 hours per year and dividing by 2000 to convert to ton(s).

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1 - 5.

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>
P010: P-14 Arc Fusion Machine #4		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P011: P-14 Arc Fusion Machine #5	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.6 pound per hour and 2.54 tons per year.
		Process nitrogen oxide emissions shall not exceed 3.59 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.18 pound per hour and 0.78 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P011 by using a selective catalytic reduction unit with at least a 85% control efficiency.
- 2.b** Permittee shall control particulate emissions from P011 using a Spencer System with at least a 99% control efficiency, a dry electrostatic precipitator with at least a 90% control efficiency, a American Air Filter with at least a 99% control efficiency and a Torit baghouse with at least a 99.9% control efficiency.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

- 1. The permittee shall maintain monthly records of the following information for P011:
 - a. the number of crucibles produced per emissions unit;
 - b. monthly hours of operation.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

- 1. Emission Limitation: 3.78 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the total number of crucibles produced in emissions unit P011 monthly by the emission factor 2.4 lbs/crucible (derived from a stack test performed by GE Newark Quartz in 12/96), then divide by the monthly hours of operation and multiply by the uncontrolled factor of the SCR unit (0.15).

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

- 2. Emission Limitation: 0.18 lb/hr fugitive nitrogen oxide
0.78 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the total number of crucibles produced in emissions unit P011 monthly by the emission factor 0.0179 lb/crucible (derived from a stack test performed by GE Newark Quartz in 12/96), then divide by the monthly hours of operation.

For the ton per year limitation, multiply the total number of crucibles produced in emissions unit P011 annually by the emission factor 0.0179 lb/crucible (derived from a stack test performed by GE Newark Quartz in 12/96), then divide by the annual hours of operation.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

- 3. Emission Limitation: visible emissions shall not exceed 20% opacity, as a six-minute average

Applicable Compliance Method:

Compliance shall be determined through visible emissions observations performed in accordance with 40CFRPart60, Method 9 and the procedures in OAC rule 3745-17-03(A)(1).

- 4. Emission Limitation: 0.6 lb/hr particulate emissions
2.54 tons/yr particulate emissions

Applicable Compliance Method:

Total hourly particulate emissions = L + F + P + Cl + V

L	=	0.0005 lb/hr	=	loading of sand into crucible pots
F	=	0.37 lb/hr	=	crucible formation through electric arc fusion
P	=	0.00017 lb/hr	=	crucible pop-off hood
C	=	0.1125 lb/hr	=	hot sand clean out
V	=	0.1 lb/hr	=	vacuum maintains sand in pot during preparation and fusion

To calculate L,

multiply the hourly process weight rate (484 lbs/hr) by the transfer emission factor (0.174 lb/ton) and the uncontrolled factor of the Spencer System (0.01) and then divide by 2000 to convert to pound(s).

The transfer emission factor was derived from using an AP-42 emission factor from Table 11.12-2 for sand and aggregate transfer to elevated bin for concrete batching (0.029 lb/ton). This factor was multiplied by the number of transfer points (6) which are

- (2) sand loading hopper to crucible furnace cart
- (2) crucible cutting and reclaim station
- (2) hot sand clean out fines

To calculate F,

multiply the maximum, hourly crucible production (10) by the particulate emission factor of 0.37 lb/crucible (derived from a stack test performed in 12/96) and the uncontrolled factor of the electrostatic precipitator (0.1).

To calculate P,

multiply the hourly process weight rate (484 lbs/hr) by the transfer emission factor (0.058 lb/ton) and the uncontrolled factor of the American Air Filter (0.01) and then divide by 2000 to convert to pound(s).

The transfer emission factor was derived from using an AP-42 emission factor from Table 11.12-2 for sand and aggregate transfer to elevated bin for concrete batching (0.029 lb/ton). This factor was multiplied by the number of transfer points 2 - crucible pop-off hoods.

To calculate C,

multiply the maximum hot sand dumped per hour (150 lbs/hr) by the collected emission factor (0.75 lb/lb) and the uncontrolled factor of the Torit baghouse (0.001).

For collected emission factor, the company estimates that 75% of the hot sand recovered goes to the baghouse while the other 25% remains in the crucible processing area.

To calculate V,

company assumes all makeup oil addition is released as particulate; approximately 0.05 lb/hr of oil is added to each of the two pumps.

Annual particulate emissions are calculated by summing maximum L + F + P+ C + V values and then multiplying by 8760 hours per year and dividing by 2000 to convert to ton(s).

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1 - 5.

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>
P011: P-14 Arc Fusion Machine #5		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P012 - P-272 Arc Fusion Machine #8	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.72 pound per hour and 3.17 tons per year.
		Process nitrogen oxide emissions shall not exceed 4.33 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.35 pound per hour and 1.53 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06	Exempted from the requirements of this rule by OAC rule 3745-18-06(C) since process equipment has a rated capacity equal to or less than one thousand pounds per hour process weight input.
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010,

P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P012 by using a selective catalytic reduction unit.
- 2.b** Permittee shall control particulate emissions from P012 using a series of dust collection systems and a dry electrostatic precipitator.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

- 1. The permittee shall maintain monthly records of the following information for P012:
 - a. the number of crucibles produced per emissions unit;
 - b. monthly hours of operation.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

- 1. Emission Limitation: 4.33 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the total number of crucibles produced in emissions unit P012 monthly by the emission factor 4.81 lbs/crucible (derived from a stack test performed by GE Newark Quartz in 12/96), then divide by the monthly hours of operation and multiply by the uncontrolled factor of the SCR unit (0.15).

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

- 2. Emission Limitation: 0.35 lb/hr fugitive nitrogen oxide
1.53 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the total number of crucibles produced in emissions unit P012 monthly by the emission factor 0.058 lb/crucible (derived from a stack test performed by GE NEWARK Quartz in 12/96), then divide by the monthly hours of operation.

For the ton per year limitation, multiply the total number of crucibles produced in emissions unit P012 annually by the emission factor 0.058 lb/crucible (derived from a stack test performed by GE NEWARK Quartz in 12/96), then divide by the annual hours of operation.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

- 3. Emission Limitation: visible emissions shall not exceed 20% opacity, as a six-minute average

Applicable Compliance Method:

Compliance shall be determined through visible emissions observations performed in accordance with 40CFRPart60, Method 9 and the procedures in OAC rule 3745-17-03(A)(1).

- 4. Emission Limitation: 0.72 lb/hr particulate emissions
3.17 tons/yr particulate emissions

Applicable Compliance Method:

Total hourly particulate emissions = L + F + P + Cl + V

L	=	0.0008 lb/hr	=	loading of sand into crucible pots
F	=	0.464 lb/hr	=	crucible formation through electric arc fusion
P	=	0.00026 lb/hr	=	crucible pop-off hood
Cl	=	0.158 lb/hr	=	hot sand cleanout
V	=	0.1 lb/hr	=	vacuum maintains sand in pot during preparation and fusion

To calculate L,

Multiply the hourly process weight rate (600 lbs/hr) by transfer emission factor (0.174 lb/ton) and the uncontrolled factor of the Spencer System (0.01) and then divide by 2000 to convert to pound(s).

The transfer emission factor was derived from using an AP-42 emission factor from Table 11.12-2 for sand and aggregate transfer to elevated bin for concrete batching (0.029 lb/ton). This factor was multiplied by the number of transfer points (6) - 2 sand loading hoppers to 2 crucible furnace carts, 2 crucible cutting and reclaim stations and 2 hot sand clean out points.

To calculate F,

Multiply the maximum, hourly crucible production (6) by the particulate emission factor of 0.774 lb/crucible (derived from a stack test performed in 12/96) and the proposed, uncontrolled factor of the electrostatic precipitator (0.1).

To calculate P,

Multiply the hourly process weight rate (600 lbs/hr) by transfer emission factor (0.058 lb/ton) and the uncontrolled factor of the American Air Filter (0.01) and then divide by 2000 to convert to pound(s).

The transfer emission factor was derived from using an AP-42 emission factor from Table 11.12-2 for sand and aggregate transfer to elevated bin for concrete batching (0.029 lb/ton). This factor was multiplied by the number of transfer points 2 - crucible pop-off hoods.

To calculate Cl,

multiply the maximum hot sand dumped per hour (210 lbs. hr) by a collected emission factor of 0.75 lb/lb and the proposed, uncontrolled factor of the Torit baghouse (0.001).

For collected emission factor, the company estimates that 75% of the hot sand recovered goes to the baghouse while the other 25% remains in the crucible processing area.

To calculate V,

company assumes all makeup oil addition is released as particulate; approximately 0.05 lb/hr of oil is added to each of the two pumps.

Annual particulate emissions are calculated by summing the five hourly components and then multiplying by 8760 hours per year and then dividing by 2000.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1 - 5.

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>
P012 - P-272 Arc Fusion Machine #8		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P014 - Large Diameter Lathe #7 - 4.56 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.5 tons per year.
		Process nitrogen oxide emissions shall not exceed 8.25 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.12 pound per hour and 0.43 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P014 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 85%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 8.25 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (4.56) by the emission factor 12.06 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.12 lb/hr fugitive nitrogen oxide
0.43 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (4.56) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (4.56) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.50 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
P014 - Large Diameter Lathe #7 - 4.56 mmBtu/hr		

2. Additional Terms and Conditions

2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P015 - Large Diameter Lathe #8 - 4.56 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.5 tons per year.
		Process nitrogen oxide emissions shall not exceed 8.25 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.12 pound per hour and 0.43 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P015 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 85%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 8.25 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (4.56) by the emission factor 12.06 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.12 lb/hr fugitive nitrogen oxide
0.43 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (4.56) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (4.56) by the emission factor 0.0253 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
1.50 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation, 7446. This value is based on multiplying 8760 hours by the BUF (see A.V.2.) and then dividing by 100.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
P015 - Large Diameter Lathe #8 - 4.56 mmBtu/hr		

2. **Additional Terms and Conditions**

- 2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P021 - 0.78 mmBtu Large Diameter Repair Lathe #1	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 0.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 1.00 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.014 pound per hour and 0.04 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P021 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 33%.
2. Every 90 minutes, a pass can be performed on a tube which last a maximum of 30 minutes. Therefore in a three hour period, the lathe operates twice at its maximum scf.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 1.00 lb/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (0.78) by the emission factor 8.5 lb/mmBtu (derived from stack test performed in March of 1998).

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.014 lb/hr fugitive nitrogen oxide
0.04 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (0.78) by the emission factor 0.018 lb/mmBtu (derived from stack test performed in March of 1998).

For the ton per year limitation, multiply the maximum three hour scf demand (4800) by the heating value of hydrogen gas (325 btu/cf) and 2920 hours to calculate the annual Btu demand; convert to mmBtu. Next, multiply by the emission factor 0.018 lb/mmBtu (derived from stack test performed in March of 1998) and convert to ton per year.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
0.6 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation of 2920. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
P021 - 0.78 mmBtu Large Diameter Repair Lathe #1		

2. **Additional Terms and Conditions**

- 2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P025 - High Purity Crucible Machine #1	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 4.13 pounds per hour. The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-11(B)(1).
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 1.042 pounds per hour and 4.6 tons per year.
	OAC rule 3745-23-06	The requirements specified in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total nitrogen oxide emissions shall not exceed 18.1 tons per year for emissions units P008, P009 and P025 as rolling 12-month summation

2. Additional Terms and Conditions

- 2.a Permittee shall only burn natural gas.

II. Operational Restrictions

2. The maximum production for P008, P009 and P025 shall not exceed 18.1 tons of nitrogen oxide and 75,416 crucibles, based upon a rolling, 12-month summation of the crucible production figures. To ensure enforceability during the first twelve calendar months of operation after issuance of this permit to install, emissions units P008, P009 and P025 shall not exceed the following nitrogen oxide emission limitations and crucible production limitations:

Maximum Allowable Cumulative Emission(s) and Production For:

Month(s)	Nitrogen Oxide (lbs)	Crucible Production (#)
1	12,000	25,000
1-2	14,200	29,538
1-3	16,400	34,166
1-4	18,600	38,750
1-5	20,800	43,333
1-6	23,000	47,916
1-7	25,200	52,500
1-8	27,400	57,083
1-9	29,600	61,666
1-10	31,800	66,250
1-11	34,000	70,833
1-12	36,200	75,416

After the first twelve calendar months of operation following the issuance of this permit, compliance with the annual nitrogen oxide emission limitation and crucible production limitation shall be based upon rolling, 12-month summations of the nitrogen oxide emissions and crucible production.

III. Monitoring and/or Recordkeeping Requirements

1. The permittee shall maintain monthly records of the following information:
- the total number of crucibles produced in P008, P009 and P025;
 - the total uncontrolled nitrogen oxide emissions, in pounds per month which are calculated using the following formula:

$$\{\text{number of crucibles produced monthly in P008}\} * \{1.02 \text{ lbs/crucible}\} + \{\text{number of crucibles produced monthly in P025}\} * \{1.02 \text{ lbs/crucible}\} + \{\text{number of crucibles produced monthly in P009}\} * \{0.48 \text{ lb/crucible}\}$$
 - beginning after the first 12 calendar months of operation following the issuance of this permit, the rolling, 12-month summation of nitrogen oxide emissions and number of crucibles produced; and

- d. during the first 12 calendar months of operation following the issuance of this permit, the cumulative nitrogen oxide emissions and number of crucibles produced for each calendar month.

IV. Reporting Requirements

1. The permittee shall submit deviation (excursion) reports which identify all exceedances of the rolling, 12-month crucible production and nitrogen oxide emissions and, for the first 12 calendar months of operation following the issuance of this permit, all exceedances of the maximum allowable crucible production and nitrogen oxide emissions levels.

These reports are due by the dates described in Part 1 - General Terms and Conditions of this permit under A.I.

2. The permittee shall also submit annual reports which specify total nitrogen oxide emissions and total crucible production from emissions units P008, P009 and P025 combined for the previous calendar year. These reports shall be submitted by January 31 of each year.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.I. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 4.13 lbs/hr nitrogen oxides
18.1 tons/yr nitrogen oxides

Applicable Compliance Method:

For the pound per hour limitation, multiply the total number of crucibles produced in emissions units P008 daily by the emission factor 1.02 lbs/crucible (derived from stack test performed by GE Newark Quartz Plant in 3/98) and then divide by the daily hours of operation.

For the ton per year limitation, multiply the total number of crucibles produced in emissions units P008 and P025 in a year by the emission factor 1.02 lbs/crucible (derived from stack test) and total number of crucibles produced in emissions units P009 in a year by the emission factor 0.48 lb/crucible (derived from stack test). Convert to tons by dividing by 2000.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: visible emissions shall not exceed 20% opacity, as a six-minute average

Applicable Compliance Method:

Compliance shall be determined through visible emissions observations performed in accordance with 40CFRPart60, Method 9 and the procedures in OAC rule 3745-17-03(A)(1).

3. Emission Limitation: 1.042 lbs/hr particulate emissions
4.6 tons/yr particulate emissions

Applicable Compliance Method:

A maximum particulate emission rate of 0.057 lb/hr was determined in a stack test performed 8/99 at the GE Newark Quartz Plant. For the ton per year limitation, multiply the hourly emission rate derived from the stack test by the maximum hours in a year (8760).

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1 - 5.

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>
P025 - High Purity Crucible Machine #1		

2. **Additional Terms and Conditions**

- 2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P032 - Large Diameter Lathe #9 - 5.04 mmBtu/hr	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 1.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.08 pound per hour and 0.32 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P032 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 90%.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 5.87 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (5.04) by the emission factor 7.77 lb/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.08 lb/hr fugitive nitrogen oxide
0.32 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998).

For the ton per year limitation, multiply the hourly mmBtu demand (5.04) by the emission factor 0.0163 lb/mmBtu (derived from a stack test performed in March of 1998) and the potential hours of operation, 7884. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

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>
P032 - Large Diameter Lathe #9 - 5.04 mmBtu/hr		

2. **Additional Terms and Conditions**

- 2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P035 - P-272 Arc Fusion Machine #9	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.76 pound per hour and 3.3 tons per year.
		Process nitrogen oxide emissions shall not exceed 4.33 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.35 pound per hour and 1.53 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06	Exempted from the requirements of this rule by OAC rule 3745-18-06(C) since process equipment has a rated capacity equal to or less than one thousand pounds per hour process weight input.
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010,

P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P012 by using a selective catalytic reduction unit.
- 2.b** Permittee shall control particulate emissions from P012 using a series of dust collection systems and a dry electrostatic precipitator.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

- 1. The permittee shall maintain monthly records of the following information for P012:
 - a. the number of crucibles produced per emissions unit;
 - b. monthly hours of operation.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

- 1. Emission Limitation: 4.33 lbs/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the total number of crucibles produced in emissions unit P012 monthly by the emission factor 4.81 lbs/crucible (derived from a stack test performed by GE NEWARK Quartz in 12/96), then divide by the monthly hours of operation and multiply by the uncontrolled factor of the SCR unit (0.15).

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

- 2. Emission Limitation: 0.35 lb/hr fugitive nitrogen oxide
1.53 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the total number of crucibles produced in emissions unit P012 monthly by the emission factor 0.058 lb/crucible (derived from a stack test performed by GE NEWARK Quartz in 12/96), then divide by the monthly hours of operation.

For the ton per year limitation, multiply the total number of crucibles produced in emissions unit P012 annually by the emission factor 0.058 lb/crucible (derived from a stack test performed by GE NEWARK Quartz in 12/96), then divide by the annual hours of operation.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

- 3. Emission Limitation: visible emissions shall not exceed 20% opacity, as a six-minute average

Applicable Compliance Method:

Compliance shall be determined through visible emissions observations performed in accordance with 40CFRPart60, Method 9 and the procedures in OAC rule 3745-17-03(A)(1).

- 4. Emission Limitation: 0.76 lb/hr particulate emissions
3.3 tons/yr particulate emissions

Applicable Compliance Method:

Total hourly particulate emissions = L + F + P + Cl + V

L	=	0.0008 lb/hr	=	loading of sand into crucible pots
F	=	0.497 lb/hr	=	crucible formation through electric arc fusion
P	=	0.00026 lb/hr	=	crucible pop-off hood
Cl	=	0.158 lb/hr	=	hot sand cleanout
V	=	0.1 lb/hr	=	vacuum maintains sand in pot during preparation and fusion

To calculate L,

Multiply the hourly process weight rate (600 lbs/hr) by transfer emission factor (0.174 lb/ton) and the uncontrolled factor of the Spencer System (0.01) and then divide by 2000 to convert to pound(s).

The transfer emission factor was derived from using an AP-42 emission factor from Table 11.12-2 for sand and aggregate transfer to elevated bin for concrete batching (0.029 lb/ton). This factor was multiplied by the number of transfer points (6) - 2 sand loading hoppers to 2 crucible furnace carts, 2 crucible cutting and reclaim stations and 2 hot sand clean out points.

To calculate F,

Multiply the maximum, hourly crucible production (6) by the particulate emission factor of 0.774 lb/crucible (derived from a stack test performed in 12/96) and the proposed, uncontrolled factor of the electrostatic precipitator (0.1).

To calculate P,

Multiply the hourly process weight rate (600 lbs/hr) by transfer emission factor (0.058 lb/ton) and the uncontrolled factor of the American Air Filter (0.01) and then divide by 2000 to convert to pound(s).

The transfer emission factor was derived from using an AP-42 emission factor from Table 11.12-2 for sand and aggregate transfer to elevated bin for concrete batching (0.029 lb/ton). This factor was multiplied by the number of transfer points 2 - crucible pop-off hoods.

To calculate Cl,

multiply the maximum hot sand dumped per hour (210 lbs. hr) by a collected emission factor of 0.75 lb/lb and the proposed, uncontrolled factor of the Torit baghouse (0.001).

For collected emission factor, the company estimates that 75% of the hot sand recovered goes to the baghouse while the other 25% remains in the crucible processing area.

To calculate V,

company assumes all makeup oil addition is released as particulate; approximately 0.05 lb/hr of oil is added to each of the two pumps.

Annual particulate emissions are calculated by summing the five hourly components and then multiplying by 8760 hours per year and then dividing by 2000.

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1 - 5.

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>
P035 - P-272 Arc Fusion Machine #9	OAC rule 3745-31-05	LIMIT(s)

2. Additional Terms and Conditions

2.a None

II. Operational Restrictions

None

III. Monitoring and/or Recordkeeping Requirements

None

IV. Reporting Requirements

None

V. Testing Requirements

None

VI. Miscellaneous Requirements

None

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

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

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

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P036 - 0.88 Large Diameter Repair Lathe #2	OAC rule 3745-31-05(A)(3)	Particulate emissions shall not exceed 0.4 pound per hour and 0.6 tons per year.
		Process nitrogen oxide emissions shall not exceed 1.1 pounds per hour.
		Fugitive nitrogen oxide emissions shall not exceed 0.016 pound per hour and 0.05 ton per year.
	OAC rule 3745-17-07(A)(1)	Visible particulate emissions from any stack shall not exceed twenty per cent opacity, as a six-minute average.
	OAC rule 3745-17-11(B)(1)	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-23-06	The requirements in this rule are less stringent than the best available technology pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-31-05(D)	Total process nitrogen oxide emissions shall not exceed 210.7 tons per year for emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P035 and P036 as a rolling 12-month summation.

2. Additional Terms and Conditions

- 2.a** Permittee shall control process nitrogen oxide emissions from P036 by using a selective catalytic reduction unit.

II. Operational Restrictions

1. The burner utilization factor (BUF) for this emissions unit shall not exceed 33%.
2. Every 90 minutes, a pass can be performed on a tube which last a maximum of 30 minutes. Therefore in a three hour period, the lathe operates twice at its maximum scf.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

Compliance with the emission limitation(s) in Section A.1. of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation: 1.10 lb/hr process nitrogen oxides

Applicable Compliance Method:

Multiply the hourly mmBtu demand (0.88) by the emission factor 8.5 lb/mmBtu (derived from stack test performed in March of 1998).

The permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Method 1-4, 7E.

2. Emission Limitation: 0.016 lb/hr fugitive nitrogen oxide
0.05 tpy fugitive nitrogen oxide

Applicable Compliance Method:

For the pound per hour limitation, multiply the hourly mmBtu demand (0.88) by the emission factor 0.018 lb/mmBtu (derived from stack test performed in March of 1998).

For the ton per year limitation, multiply the maximum three hour scf demand (4800) by the heating value of hydrogen gas (325 btu/cf) and 2920 hours to calculate the annual Btu demand; convert to mmBtu. Next, multiply by the emission factor 0.018 lb/mmBtu (derived from stack test performed in March of 1998) and convert to ton per year.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-4, 7E.

3. Emission Limitation: 0.4 lb/hr particulate
0.6 tpy particulate

Applicable Compliance Method:

The pound per hour limitation was derived from a stack test performed in May of 1998.

For the ton per year limitation, multiply the hourly limit the potential hours of operation of 2920. This value is based on multiplying 8760 hours by the BUF and then dividing by 100.

BUF represents the amount of time that the burners are on and process NOx and particulate are being produced. This factor is dependent upon the number of passes required to impart the necessary specifications to the tube during firing as well as pre and post-preparation of the tube.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

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>
P036 - 0.88 Large Diameter Repair Lathe #2		

2. **Additional Terms and Conditions**

- 2.a None.

II. Operational Restrictions

None.

III. Monitoring and/or Recordkeeping Requirements

None.

IV. Reporting Requirements

None.

V. Testing Requirements

None.

VI. Miscellaneous Requirements

None.

