



State of Ohio Environmental Protection Agency

**RE: FINAL PERMIT TO INSTALL MODIFICATION  
LICKING COUNTY**

**CERTIFIED MAIL**

Street Address:

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

Mailing Address:

Lazarus Gov.  
Center

**Application No: 01-08046**

**DATE:** 3/14/2002

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

Enclosed Please find a modification to the Ohio EPA Permit To Install referenced above which will modify the terms and conditions.

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

Environmental Review Appeals Commission  
236 East Town Street, Room 300  
Columbus, Ohio 43215

Very truly yours,

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

cc: USEPA

CDO



**Permit To Install  
Terms and Conditions**

**Issue Date: 3/14/2002  
Effective Date: 3/14/2002**

FINAL ADMINISTRATIVE MODIFICATION OF PERMIT TO INSTALL 01-08046

Application Number: 01-08046  
APS Premise Number: 0145000213  
Permit Fee: **\$5200**  
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):  
**26 emission units.**

The above named entity is hereby granted a modification to the permit to install described above pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this modification 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 source(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 included in the application, the above described source(s) of pollutants will be granted the necessary operating permits.

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 Record keeping 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 record keeping 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 record keeping 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.10 below if no deviations occurred during the quarter.

- iii. Written reports, which identify any deviations from the federally enforceable monitoring, record keeping, 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.

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#### **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.

#### **11. Best Available Technology**

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

#### **12. Air Pollution Nuisance**

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

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**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 Record keeping Requirements**

The permittee shall submit required reports in the following manner:

- a. Reports of any required monitoring and/or record keeping 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 record keeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the appropriate Ohio EPA District Office or local air agency. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

**3. Permit Transfers**

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

**4. Termination of Permit To Install**

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

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within a reasonable time a continuing program of installation or modification. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.

#### **5. Construction of New Sources(s)**

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

If the construction of the proposed emissions unit(s) has already begun or has been completed prior to the date the Director of the Environmental Protection Agency approves the permit application and plans, the approval does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the approved plans. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of the Permit to Install does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Approval of the plans in any case is not to be construed as an approval of the facility as constructed and/or completed. Moreover, issuance of the Permit to Install is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.

#### **6. Public Disclosure**

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

#### **7. Applicability**

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This Permit to Install is applicable only to the emissions unit(s) identified in the Permit To Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

#### 8. Construction Compliance Certification

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

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

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

#### C. Permit To Install Summary of Allowable Emissions

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

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

<u>Pollutant</u>	<u>Tons Per Year</u>
Nitrogen Oxide	228.8
Particulate	86.05
Ammonia	40.4

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**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 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, P032, P035 and P036 by using a selective catalytic reduction unit.

**2. Operational Restriction**

The maximum 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, P032, 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 nitrogen oxide emission limitations:

<u>Month</u>	<u>Total NO<sub>x</sub> 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 nitrogen oxide emission limitation shall be based upon rolling, 12-month summation of the nitrogen oxide emissions.

**3. Monitoring and Record keeping 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 nitrogen oxide emissions;
  - ii. During the first 12 calendar months of operation following the issuance of this permit, the cumulative nitrogen oxide emissions for each calendar month;

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- b. The permittee shall operate and maintain existing equipment to continuously monitor and record NO<sub>x</sub> 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, P032, 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<sub>x</sub> monitoring system including, but not limited to, parts per million NO<sub>x</sub> on an instantaneous (one-minute) basis, emissions of NO<sub>x</sub> in units of the applicable standard in the appropriate averaging period (e.g., hourly, hourly rolling, 3-hour, daily, 30-day rolling, 12-month rolling, etc.), results of daily zero/span calibration checks, and magnitude of manual calibration adjustments.

- c. The permittee shall collect and record the following information for each CEM malfunction:

- i. Number of lathes operating;
- ii. Identify each arc fusion machine in operation;
- iii. The uncontrolled nitrogen oxide emissions from lathe operation by multiplying the number of lathes in operation (from term #.1.a A.3.c.i.) by the maximum, uncontrolled emission rate of the lathes (7.34 lbs/hr); and
- iv. The uncontrolled nitrogen oxide emissions from the arc fusion machines\* by using the following equation: {arc fusion machine #4 - P010} x 3.59 lbs/hr + {arc fusion machine #5 - P011} x 3.59 lbs/hr + {arc fusion machine #8 - P012} x 4.33 lbs/hr + {arc fusion machine #9 - P035} x 4.33 lbs/hr.

\* if the arc fusion machine is not in operation at the time of the CEM malfunction then its emissions are zero

- d. monthly, uncontrolled nitrogen oxide emissions from each CEM malfunction.

#### 4. Statement of Certification

Prior to the installation of the continuous NO<sub>x</sub> monitoring system, the permittee shall submit information detailing the proposed location of the sampling site as described in the siting requirements in 40 CFR Part 60, Appendix B, Performance Specification 2 for approval by the Ohio EPA, Central Office.

Within 180 days of SCR startup, the permittee shall conduct certification tests of such equipment pursuant to ORC section 3704.03(I) and as described in 40 CFR Part 60, Appendix B, Performance Specification 2. Personnel from the appropriate Ohio EPA District Office or local

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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<sub>x</sub> 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). The Ohio EPA recommends that GE Newark Quartz follow the methodology found in 40 CFR Part 60, Appendix B, Performance Specification 2 to ensure that certification will be met.

## **5. CEM Malfunction**

In the event of a CEM malfunction, emissions units B001, B002, B003, B004, B005, B006, B023, B024, B025, B026, B027, B028, B029, B030, B031, P010, P011, P012, P014, P015, P021, P032, P035 and P036 will be shut down. If these emissions units are in operation when the CEM malfunctions, they are required to be shut down within an hour of the CEM malfunction. Once these emissions units are shut down, they will remain shut down until the CEM is back on-line and operational.

In order for GE to continue to operate the above emissions units after a CEM malfunction, GE may submit an alternative method approved by the Ohio EPA for estimating emissions from the arc fusion machines and large diameter lathes.

## **6. Reporting Requirements**

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

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

- b. The permittee shall also submit annual reports which specify total 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, P032, 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 rule 3745-15-04, and ORC sections 3704.03(I) and 3704.031, 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<sub>x</sub> values in excess of any limitations specified in the terms and conditions of this permit. These reports shall also contain the total NO<sub>x</sub> emissions for the calendar quarter (in tons), for the first 12 months of operation of the SCR unit.

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<sub>x</sub> monitoring system downtime while the emissions units were on line (date, time, duration and reason) along with any corrective action(s) taken. During the reporting period, 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 permittee shall also provide the total time, during which one or more of the emissions units vented to the SCR unit was online during the previous period.

If there are no excess emissions during the calendar quarter, the permittee shall submit a statement to that effect. If there are malfunctions of emissions units, control equipment and/or the monitoring system, during the calendar quarter, the permittee shall submit the emissions units operating time during the malfunction period and the date, time, reason, and corrective action(s) taken for each malfunction. The total operating time of the analyzer shall be included in the quarterly report. These quarterly excess emission reports shall be submitted by January 31, April 30, July 31, and October 31 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 and ORC sections 3704.03(I) and 3704.031, the permittee shall submit a summary of the excess emission report. 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.

**7. Quality Assurance/Quality Control**

Within 180 days of SCR unit startup, the permittee shall develop a written quality assurance/quality control plan for the continuous NO<sub>x</sub> monitoring system designed to ensure continuous valid and representative readings of NO<sub>x</sub> emissions in units of the applicable standard. The plan shall follow the methodology and procedure(s) of 40 CFR Part 60, Appendix F. The quality assurance/quality control plan and a logbook dedicated to the continuous NO<sub>x</sub> monitoring system must be kept on site and available for inspection during regular office hours.

## 8. Testing Requirements

- a. Compliance with the emission limitation(s) in Section A.2 of these terms and conditions shall be determined in accordance with the following methods:

i. Emission Limitation:

210.7 tpy 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, P032, P035 and P036 as a rolling 12-month summation.

Applicable Compliance Method:

The permittee shall demonstrate compliance with this emission limitation by adding the uncontrolled, nitrogen oxide emissions (see term A.3.d) to the continuous NO<sub>x</sub> monitoring system readout for nitrogen oxide emissions. To ensure the validity of readouts from this monitoring system, the CEM for NO<sub>x</sub> emissions will be certified annually pursuant to the provisions for a relative accuracy test audit (RATA) in 40 CFR Part 60, Appendix F.

ii. 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, P032, P035 and P036 in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of the permit.
- b. The emission testing shall be conducted to demonstrate compliance with the overall control efficiency requirement for the selective catalytic reduction unit.
- c. 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. Note: Such an emissions test shall be conducted at the inlet as well as the outlet of the control device for purposes of determining the

efficiency of the control device.

- d. The test(s) shall be conducted while the emissions units are operating at or near its maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

iii. Initial dry ESP Testing Requirements

The permittee shall conduct, or have conducted, emission testing for this emissions units P010, P011, P012 and P035 in accordance with the following requirements:

- a. The emission testing shall be conducted within 3 months after issuance of the permit.
- b. The emission testing shall be conducted to demonstrate compliance with the hourly limits for representative emissions units listed in this permit.
- c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): Methods 1 - 5. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- d. 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.
- e. 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.

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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.

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**B. State Enforceable Permit to Install Facility Specific Terms and Conditions**

1. Ammonia emissions shall not exceed 9.22 pounds per hour and 40.4 tons per year.
2. Air Toxics Language

The permit to install for this facility was evaluated based on the actual materials and the design parameters of the Selective Catalytic Reduction (SCR) unit system, as specified by the permittee in the permit to install application. The Ohio EPA's "Review of New Sources of Air Toxic Emissions" policy ("Air Toxic Policy") was applied for each pollutant emitted by this SCR unit that was required to be modeled using data from the permit to install application and the SCREEN 3.0 model (or other Ohio EPA approved model). The predicted 1-hour maximum ground-level concentration from the use of the SCREEN 3.0 model was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC). The following summarizes the results of the modeling for the "worst case" pollutant:

Pollutant: ammonia

TLV (mg/m<sup>3</sup>): 17

Maximum Hourly Emission Rate (lbs/hr): 9.22

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 56.63

MAGLC (ug/m<sup>3</sup>): 404.8

Physical changes to or changes in the method of operation of the emissions units ducted to or the method of operation of the SCR unit after its installation or modification could affect the parameters used to determine whether or not the "Air Toxic Policy" is satisfied. Consequently, prior to making a change that could impact such parameters, the permittee shall conduct an evaluation to determine that the "Air Toxic Policy" will still be satisfied. If, upon evaluation, the permittee determines that the "Air Toxic Policy" will not be satisfied, the permittee will not make the change. Changes that can affect the parameters used in applying the "Air Toxic Policy" include the following:

- i. Changes in the composition of the materials used (typically for coatings or cleanup materials), or the use of new materials, that would result in the emission of a compound with a lower Threshold Limit Value (TLV), as indicated in the most recent version of the handbook entitled "American Conference of Governmental Industrial Hygienists (ACGIH)," than the lowest TLV value previously modeled;
- ii. Changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any pollutant with a listed TLV that was proposed in the application and modeled; and
- iii. Physical changes to the emissions unit or its exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Air Toxic Policy" will be satisfied for the above changes, the

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Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01(VV)(1)(a)(ii), and a modification of the existing permit to install will not be required. If the change(s) is (are) defined as a modification under other provisions of the modification definition (other than (VV)(1)(a)(ii)), then the permittee shall obtain a final permit to install prior to the change.

The permittee shall collect, record, and retain the following information when it conducts evaluations to determine that the changed emissions units ducted to the SCR unit or changes to the SCR unit will still satisfy the "Air Toxic Policy:"

- i. A description of the parameters changed (composition of materials, new pollutants emitted, change in stack/exhaust parameters, etc.);
- ii. Documentation of its evaluation and determination that the changed emissions unit still satisfies the "Air Toxic Policy"; and
- iii. Where computer modeling is performed, a copy of the resulting computer model runs that show the results of the application of the "Air Toxic Policy" for the change.

### **3. Testing Requirement**

Emission Limitation:

Ammonia emissions shall not exceed 9.22 pounds per hour and 40.4 tons per year.

Applicable Compliance Method:

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

- a. The emission testing shall be conducted three months after SCR unit installation.
- b. The emission testing shall be conducted to demonstrate compliance with the allowable, hourly emission rate for ammonia.
- c. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR 60, Appendix A, Methods 1 - 4 and modified Method 5. Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.
- d. The test(s) shall be conducted while the emissions unit(s) ducted to the SCR unit are operating at or near their maximum capacity, unless otherwise specified or approved by the appropriate Ohio EPA District Office or local air agency.

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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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

**2. Additional Terms and Conditions**

- 2.a** Permittee shall control nitrogen oxide emissions from B001 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in

Emissions Unit ID: **B001**

May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

**3. Emission Limitation:**

Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**G E Q**

**PTI A**

**Modification Issued: 3/14/2002**

Emissions Unit ID: **B001**

G E Q

PTI A

Modification Issued: 3/14/2002

Emissions Unit ID: B002

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.  Particulate emissions shall not exceed 2.4 tons per year.  See A.I.2.a below.
	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 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling 12-month summation.

## 2. Additional Terms and Conditions

- 2.a. Permittee shall control nitrogen oxide emissions from B002 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b. The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

## II. Operational Restrictions

None.

## III. Monitoring and/or Record keeping Requirements

None.

## IV. Reporting Requirements

None.

## V. Testing Requirements

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

1. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.

Applicable Compliance Method:

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

2. Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as

provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling 12-month summation.

**2. Additional Terms and Conditions**

- 2.a. Permittee shall control nitrogen oxide emissions from B003 by using a selective catalytic reduction unit with at least 85% control efficiency.

- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

## II. Operational Restrictions

None.

## III. Monitoring and/or Record keeping Requirements

None.

## IV. Reporting Requirements

None.

## V. Testing Requirements

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

- 3.** Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as

provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**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>
B003 - Large Diameter Lathe #3 - 3.78 mmBtu/hr with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.  Particulate emissions shall not exceed 2.4 tons per year.  See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling 12-month summation.

**Modification Issued: 3/14/2002**

**2. Additional Terms and Conditions**

**2.a.** Permittee shall control nitrogen oxide emissions from B004 by using a selective catalytic reduction unit with at least 85% control efficiency.

**2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in

Emissions Unit ID: **B004**

May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

**3. Emission Limitation:**

Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**VI. Miscellaneous Requirements**

None.

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PTI A

Modification Issued: 3/14/2002

Emissions Unit ID: **B004****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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**G E Q**

**PTI A**

**Modification Issued: 3/14/2002**

Emissions Unit ID: **B004**

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling 12-month summation.

## 2. Additional Terms and Conditions

- 2.a.** Permittee shall control nitrogen oxide emissions from B005 by using a selective catalytic reduction unit with at least 85% control efficiency. Particulate emissions shall not exceed 0.55 pound per hour and 2.4 tons per year.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

## II. Operational Restrictions

None.

## III. Monitoring and/or Record keeping Requirements

None.

## IV. Reporting Requirements

None.

## V. Testing Requirements

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

- 3.** Emission Limitation:

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Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

**4.** Emission Limitation:

Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5.** Emission Limitation:

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6.** Emission Limitation:

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**VI. Miscellaneous Requirements**

None.

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**PTI A**

**Modification Issued: 3/14/2002**

Emissions Unit ID: **B005**

**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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**G E Quartz Inc**  
**PTI Application: 01 09046**  
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**Facility ID: 0145000213**

Emissions Unit ID: **B005**

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PTI A

Modification Issued: 3/14/2002

Emissions Unit ID: B006

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

**Modification Issued: 3/14/2002**

**2. Additional Terms and Conditions**

**2.a.** Permittee shall control nitrogen oxide emissions from B006 by using a selective catalytic reduction unit with at least 85% control efficiency.

**2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

**1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 6.84 pounds per hour.

Applicable Compliance Method:

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

**2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## 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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.  Particulate emissions shall not exceed 2.4 tons per year.  See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

**Modification Issued: 3/14/2002**

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from B023 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## VI. Miscellaneous Requirements

None.

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Modification Issued: 3/14/2002

Emissions Unit ID: **B023****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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**G E Q**

**PTI A**

**Modification Issued: 3/14/2002**

Emissions Unit ID: **B023**

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour, based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from B024 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
 Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
 Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

- 3.** Emission Limitation:  
 Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as

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provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**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>
B024 - Large Diameter Lathe #11 - 5.04 mmBtu/hr with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**G E Quartz Inc**

**PTI Application: 01 09046**

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**Facility ID: 0145000213**

**Emissions Unit ID: B024**

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from B025 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

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limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

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**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from B026 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

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limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

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**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from B027 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

limitation in accordance with 40 CFR Part 60, Methods 1-5.

- 3. Emission Limitation:**  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

**Applicable Compliance Method:**

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

- 4. Emission Limitation:**  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

**Applicable Compliance Method:**

See Part II - State and Federally Enforceable Section A.8.a.i.

- 5. Emission Limitation:**  
Particulate emissions shall not exceed 2.4 tons per year.

**Applicable Compliance Method:**

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

- 6. Emission Limitation:**  
85% control efficiency for nitrogen oxide emissions

**Applicable Compliance Method:**

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## **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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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Emissions Unit ID: **B027**

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

## 2. Additional Terms and Conditions

- 2.a. Permittee shall control nitrogen oxide emissions from B028 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b. The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

## II. Operational Restrictions

None.

## III. Monitoring and/or Record keeping Requirements

None.

## IV. Reporting Requirements

None.

## V. Testing Requirements

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

1. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

2. Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as

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provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## **VI. Miscellaneous Requirements**

None.

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Emissions Unit ID: **B028****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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**Facility ID: 0145000213**

**Emissions Unit ID: B028**

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.  Particulate emissions shall not exceed 2.4 tons per year.  See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

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**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from B029 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## 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>
B029 - Large Diameter Lathe #17 - 5.04 mmBtu/hr with SCR unit and CEM		

### 2. Additional Terms and Conditions

- 2.a None.

## II. Operational Restrictions

None.

## III. Monitoring and/or Record keeping 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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 7.34 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month

summation.

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from B030 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 7.34 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

Emissions Unit ID: **B030**

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## VI. Miscellaneous Requirements

None.

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Emissions Unit ID: B030

**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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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Emissions Unit ID: **B030**

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

## 2. Additional Terms and Conditions

- 2.a. Permittee shall control nitrogen oxide emissions from B031 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

## II. Operational Restrictions

None.

## III. Monitoring and/or Record keeping Requirements

None.

## IV. Reporting Requirements

None.

## V. Testing Requirements

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

1. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

2. Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as

provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**VI. Miscellaneous Requirements**

None.

G E Q

PTI A

Modification Issued: 3/14/2002

Emissions Unit ID: **B031****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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**G E Quartz Inc**

**PTI Application: 01 09046**

**Modif**

**Facility ID: 0145000213**

**Emissions Unit ID: B031**

**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.
		Particulate emissions shall not exceed 3.25 tons 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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.74 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.a below.
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 The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best

G E Q

PTI A

Modification Issued: 3/14/2002

Emissions Unit ID: P009

available technology requirements.

## 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 Record keeping 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 lbs/crucible} + {number of crucibles produced monthly in P009} \* {0.48 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.1 of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 3.3 pounds per hour.

Applicable Compliance Method:

Multiply the maximum number of crucibles produced in emissions units P009 hourly (6) by the emission factor 0.48 lb/crucible (derived from stack test performed by GE Newark Quartz Plant in 3/98)

Emissions Unit ID: P009

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

2. Emission Limitation:  
Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, 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:  
Particulate emissions shall not exceed 0.74 pound per hour based on Table I.

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.

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

4. Emission Limitation:  
Particulate emissions shall not exceed 3.25 tons per year.

Applicable Compliance Method:

Multiply the hourly emission rate (0.017 lb/hr) derived from a stack test performed in 8/99 by the maximum hours in a year (8760) and divide by 2000 to convert to tons per year.

5. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 18.1 tons per year.

Applicable Compliance Method:

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). To convert to ton(s), divide by 2000.

## 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 Record keeping 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 with SCR unit, CEM, dry ESP and supplemental dust control systems	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 3.59 pounds per hour.
		Particulate emissions shall not exceed 7.0 tons per year.
		See A.I.2.a - b below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 1.6 pounds per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.c below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

## 2. Additional Terms and Conditions

- 2.a Permittee shall control 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 series of dust collection systems and a dry electrostatic precipitator (electric arc fusion blockhouse).
- 2.c The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

## II. Operational Restrictions

None.

## III. Monitoring and/or Record keeping Requirements

- 1. The permittee shall maintain monthly records of the following information for P010:
  - 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.I.1 of these terms and conditions shall be determined in accordance with the following methods:

- 1. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 3.59 pounds per hour.

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).

- 2. Emission Limitation:  
Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by

rule.

Applicable Compliance Method:

If required, 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:**

Particulate emissions shall not exceed 1.6 pounds per hour based on Table I.

Applicable Compliance Method:

Compliance with the hourly particulate emission limit shall be determined by using the following equation:

$L + F + P + C + V$  where

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

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 baghouse 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).

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).

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

Emissions Unit ID: **P010**

- i. The emission testing shall be conducted within 3 months after issuance of the permit and within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted to demonstrate maximum hourly particulate emissions from crucible formation through arc fusion.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 5. 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 Ohio EPA, Central District Office.

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 Spencer 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.

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

- i. The emission testing shall be conducted within 3 months after issuance of the permit and within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted to demonstrate maximum hourly particulate emissions from hot sand clean out.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 5.

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 Ohio EPA, Central District Office.

To calculate V,

the particulate emission contribution from V is based on the company's assumption all makeup oil addition is released as particulate; approximately 0.05 lb/hr of oil is added to each of the two pumps.

4. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - A.8.a.ii.

5. Emission Limitation:  
Total 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, P032, P035 and P036 as a rolling, 12-month summation.

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - A.8.a.i.

6. Emission Limitation:  
Particulate emissions shall not exceed 7.0 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying the pound per hour emission rate in A.V.3 by 8760 hours of operation and dividing by 2000 pounds to convert ton ton(s).

7. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA, Central District Office. 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

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

Personnel from the appropriate Ohio EPA, Central District Office 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 Ohio EPA, Central District Office 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 Ohio EPA, Central District Office.

**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 with SCR unit, CEM, dry ESP and supplemental dust control systems		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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 with SCR unit, CEM, dry ESP and supplemental dust control systems	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 3.59 pounds per hour.  Particulate emissions shall not exceed 7.0 tons per year.  See A.I.2.a - b. below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 1.6 pounds per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.c below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

**2. Additional Terms and Conditions**

- 2.a. Permittee shall control 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 series of dust collection systems and a dry electrostatic precipitator (electric arc fusion blockhouse).
- 2.c. The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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.I.1 of these terms and conditions shall be determined in accordance with the following methods:

- 1. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 3.59 pounds per hour.

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).

2. Emission Limitation:  
 Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, 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:  
 Particulate emissions shall not exceed 1.6 pounds per hour based on Table I.

Applicable Compliance Method:

Compliance with the hourly particulate emission limit shall be determined by using the following equation:

$L + F + P + C + V$  where

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

To calculate L,

multiply the hourly weight rate (484 lbs/hr) by the transfer emission factor (0.174 lb/ton) and the uncontrolled factor of the Spencer baghouse 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).

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).

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

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- i. The emission testing shall be conducted within 3 months after issuance of the permit and within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted to demonstrate maximum hourly particulate emissions from crucible formation through arc fusion.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 5. 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 Ohio EPA, Central District Office.

To calculate P,

multiply the hourly 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, two 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 Spencer 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.

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

- i. The emission testing shall be conducted within 3 months after issuance of the permit and within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted to demonstrate maximum hourly particulate emissions from hot sand clean out.

- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 5. 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 Ohio EPA, Central District Office.

To calculate V,

the particulate emission contribution from V is based on the company's assumption all makeup oil addition is released as particulate; approximately 0.05 lb/hr of oil is added to each of the two pumps.

- 4. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - A.8.a.ii.

- 5. Emission Limitation:  
Total 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, P032, P035 and P036 as a rolling, 12-month summation.

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - A.8.a.i.

- 6. Emission Limitation:  
Particulate emissions shall not exceed 7.0 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying the pound per hour emission rate in A.V.3 by 8760 hours of operation and dividing by 2000 pounds to convert ton(s).

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

Personnel from the appropriate Ohio EPA, Central District Office 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 Ohio EPA, Central District Office 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 Ohio EPA, Central District Office.

**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 with SCR unit, CEM, dry ESP and supplemental dust control systems		

**2. Additional Terms and Conditions**

**2.a** None.

**II. Operational Restrictions**

**G E Quartz Inc**  
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**Modif**

**Facility ID: 0145000213**

Emissions Unit ID: **P011**

None.

**III. Monitoring and/or Record keeping 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 with SCR unit, CEM, dry ESP and supplemental dust control systems	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 4.33 pounds per hour.
		Particulate emissions shall not exceed 8.10 tons per year.
		See A.I.2.a - b below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 1.9 pounds per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.c below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

**Modification Issued: 3/14/2002**

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from P012 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b.** Permittee shall control particulate emissions from P012 using a series of dust collection systems and a dry electrostatic precipitator (electric arc fusion blockhouse).
- 2.c.** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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.I.1 of these terms and conditions shall be determined in accordance with the following methods:

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 4.33 pounds per hour.

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).

2. Emission Limitation:  
Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, 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:  
Particulate emissions shall not exceed 1.9 pounds per hour based on Table I.

Applicable Compliance Method:

Compliance with the hourly particulate emission limit shall be determined by using the following equation:

$L + F + P + C + V$  where

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

To calculate L,

multiply the hourly weight rate (600 lbs/hr) by the transfer emission factor (0.174 lb/ton) and the uncontrolled factor of the Spencer baghouse 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).

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 uncontrolled factor of the electrostatic precipitator (0.1).

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

- i. The emission testing shall be conducted within 3 months after issuance of the permit and within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted to demonstrate maximum hourly particulate emissions from crucible formation through arc fusion.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 5. 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 Ohio EPA, Central District Office.

To calculate P,

multiply the hourly weight rate (600 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, two crucible pop-off hoods.

To calculate C,

multiply the maximum hot sand dumped per hour (210 lbs/hr) by the collected emission factor (0.75 lb/lb) and the uncontrolled factor of the Spencer 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.

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

- i. The emission testing shall be conducted within 3 months after issuance of the permit and within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted to demonstrate maximum hourly particulate emissions from hot sand clean out.

- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1 through 5. 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 Ohio EPA, Central District Office.

To calculate V,

the particulate emission contribution from V is based on the company's assumption all makeup oil addition is released as particulate; approximately 0.05 lb/hr of oil is added to each of the two pumps.

4. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - A.8.a.ii.

5. Emission Limitation:  
Total 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, P032, P035 and P036 as a rolling, 12-month summation.

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - A.8.a.i.

6. Emission Limitation:  
Particulate emissions shall not exceed 7.0 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying the pound per hour emission rate in A.V.3 by 8760 hours of operation and dividing by 2000 pounds to convert ton(s).

7. Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to

**G E Quartz Inc****PTI Application: 01 09046****Modif****Facility ID: 0145000213**Emissions Unit ID: **P012**

Test" notification to the Ohio EPA, Central District Office. 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, Central District Office's refusal to accept the results of the emission test(s).

Personnel from the appropriate Ohio EPA, Central District Office 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 Ohio EPA, Central District Office 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 Ohio EPA, Central District Office.

**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 with SCR unit, CEM, dry ESP and supplemental dust control systems		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

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**G E Q**

**PTI A**

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Emissions Unit ID: **P012**

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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 8.25 pounds per hour.
		Particulate emissions shall not exceed 2.4 tons per year.
		See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

Modification Issued: 3/14/2002

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from P014 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 8.25 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

**G E Quartz Inc****PTI Application: 01 00046****Modif****Facility ID: 0145000213**Emissions Unit ID: **P014**

limitation in accordance with 40 CFR Part 60, Methods 1-5.

**3. Emission Limitation:**

Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**G E Q**

**PTI A**

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Emissions Unit ID: **P014**

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 8.25 pounds per hour.  Particulate emissions shall not exceed 2.4 tons per year.  See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

## 2. Additional Terms and Conditions

- 2.a.** Permittee shall control nitrogen oxide emissions from P015 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

## II. Operational Restrictions

None.

## III. Monitoring and/or Record keeping Requirements

None.

## IV. Reporting Requirements

None.

## V. Testing Requirements

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60, Methods 1-5.

- 3.** Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as

provided by rule.

Applicable Compliance Method:

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

**4. Emission Limitation:**

Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

**5. Emission Limitation:**

Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

**6. Emission Limitation:**

85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

**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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

- 2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.

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**PTI Application: 01 09046**

**Modif**

**Facility ID: 0145000213**

Emissions Unit ID: **P015**

**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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 1.00 pound per hour.  Particulate emissions shall not exceed 2.4 tons per year.  See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

Modification Issued: 3/14/2002

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from P021 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 1.00 pound per hour.

Applicable Compliance Method:

Multiply the hourly mmBtu demand (0.78) by the emission factor 8.5 lbs/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## 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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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.
		Particulate emissions shall not exceed 4.6 tons 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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 1.042 pounds per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.a below.
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 The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best

available technology requirements.

## 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 Record keeping 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:  

$$\{\text{number of crucibles produced monthly in P008}\} * \{1.02 \text{ lbs/crucible}\} + \{\text{number of}$$

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crucibles produced monthly in P025}\*{1.02 lbs/crucible} + {number of crucibles produced monthly in P009}\*{0.48 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.1 of these terms and conditions shall be determined in accordance with the following methods:

1. Emission Limitation:  
 Nitrogen oxide emissions shall not exceed 4.13 pounds per hour.

Applicable Compliance Method:

Multiply the maximum number of crucibles produced in emissions unit P025 hourly (3.5) by the emission factor 1.02 lbs/crucible (derived from stack test performed by GE Newark Quartz Plant in 3/98).

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:

**Modification Issued: 3/14/2002**

Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, 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:**

Particulate emissions shall not exceed 1.042 pounds per hour based on Table I.

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.

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

**4. Emission Limitation:**

Particulate emissions shall not exceed 4.6 tons per year.

Applicable Compliance Method:

Multiply the hourly emission rate (0.057 lb/hr) derived from a stack test performed in 8/99 by the maximum hours in a year (8760) and divide by 2000 to convert to tons per year.

**5. Emission Limitation:**

Nitrogen oxide emissions shall not exceed 18.1 tons per year.

Applicable Compliance Method:

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.

**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 Record keeping 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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.  Particulate emissions shall not exceed 2.4 tons per year.  See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

Modification Issued: 3/14/2002

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from P032 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 5.87 pounds per hour.

Applicable Compliance Method:

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

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## 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>
P032 - Large Diameter Lathe #9 - 5.04 mmBtu/hr with SCR unit and CEM		

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping 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 - P272 Arc Fusion Machine #9 with SCR unit, CEM, dry ESP and supplemental dust control systems	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 4.33 pounds per hour.  Particulate emissions shall not exceed 8.1 tons per year.  See A.I.2.a - A.I.2.b below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 1.9 pounds per hour, based on Table I.
	OAC rule 3745-23-06	See A.I.2.c below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

**2. Additional Terms and Conditions**

- 2.a. Permittee shall control nitrogen oxide emissions from P035 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b. Permittee shall control particulate emissions from P035 using a series of dust collection systems and a dry electrostatic precipitator (electric arc fusion blockhouse).
- 2.c. The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

- 1. The permittee shall maintain monthly records of the following information for P035:
  - 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.I.1 of these terms and conditions shall be determined in accordance with the following methods:

- 1. Emission Limitation:  
Nitrogen oxide emissions shall not exceed 4.33 pounds per hour.

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).

2. Emission Limitation:

Visible emissions shall not exceed 20% opacity, as a six-minute average, except as provided by rule.

Applicable Compliance Method:

If required, 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:

Particulate emissions shall not exceed 1.90 pounds per hour based on Table I.

Applicable Compliance Method:

Compliance with the hourly particulate emission limit shall be determined by using the following equation:

$L + F + P + C + V$  where

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

To calculate L,

multiply the hourly weight rate (600 lbs/hr) by the transfer emission factor (0.174 lb/ton) and the uncontrolled factor of the Spencer baghouse 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).

To calculate F,

multiply the maximum, hourly crucible production (3) by the particulate emission factor of 1.66 lbs/crucible (derived from a stack test performed in 12/96) and the uncontrolled factor of the

electrostatic precipitator (0.1).

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

- i. The emission testing shall be conducted within 3 months after issuance of the permit and within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted to demonstrate maximum hourly particulate emissions from crucible formation through arc fusion.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1-4 and 5. 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 Ohio EPA, Central District Office.

To calculate P,

multiply the hourly weight rate (600 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, two crucible pop-off hoods.

To calculate C,

multiply the maximum hot sand dumped per hour (210 lbs/hr) by the collected emission factor (0.75 lb/lb) and the uncontrolled factor of the Spencer 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.

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

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Emissions Unit ID: P035

- i. The emission testing shall be conducted within 3 months after issuance of the permit and within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted to demonstrate maximum hourly particulate emissions from hot sand clean out.
- iii. The following test method(s) shall be employed to demonstrate compliance with the allowable mass emission rate(s): 40 CFR Part 60, Appendix A, Methods 1-4 and 5. 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 Ohio EPA, Central District Office.

To calculate V,

the particulate emission contribution from V is based on the company's assumption all makeup oil addition is released as particulate; approximately 0.05 lb/hr of oil is added to each of the two pumps.

4. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

5. Emission Limitation:  
Total 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, P032, P035 and P036 as a rolling, 12-month summation.

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - A.8.a.i.

6. Emission Limitation:  
Particulate emissions shall not exceed 8.1 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying the pound per hour emission rate in A.V.3 by 8760 hours of operation and dividing by 2000 pounds to convert ton(s).

**Modification Issued: 3/14/2002**

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

Personnel from the appropriate Ohio EPA, Central District Office 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 Ohio EPA, Central District Office 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 Ohio EPA, Central District Office.

**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 with SCR unit, CEM, dry ESP and supplemental dust collection system		

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

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**Facility ID: 0145000213**

**Emissions Unit ID: P035**

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 with SCR unit and CEM	OAC rule 3745-31-05(A)(3)	Nitrogen oxide emissions shall not exceed 1.1 pounds per hour.  Particulate emissions shall not exceed 2.4 tons per year.  See A.I.2.a below.
	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, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	Particulate emissions shall not exceed 0.55 pound per hour based on Table I.
	OAC rule 3745-23-06	See A.I.2.b below.
	OAC rule 3745-31-05(D)	Total 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, P032, P035 and P036 as a rolling, 12-month summation.

Modification Issued: 3/14/2002

**2. Additional Terms and Conditions**

- 2.a.** Permittee shall control nitrogen oxide emissions from P036 by using a selective catalytic reduction unit with at least 85% control efficiency.
- 2.b** The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06 by committing to comply with the best available technology requirements.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

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

- 1.** Emission Limitation:  
Nitrogen oxide emissions shall not exceed 1.1 pounds per hour.

Applicable Compliance Method:

Multiply the hourly mmBtu demand (0.88) by the emission factor 8.5 lbs/mmBtu (derived from stack test performed in March of 1998) and the uncontrolled factor of the SCR unit (15%), then divide by 100.

- 2.** Emission Limitation:  
Particulate emissions shall not exceed 0.55 pound per hour based on Table I.

Applicable Compliance Method:

The maximum, actual hourly emission rate (0.4 lb/hr) was derived from a stack test performed in May of 1998. If required, the permittee shall demonstrate compliance with this emission

limitation in accordance with 40 CFR Part 60, Methods 1-5.

3. Emission Limitation:  
Visible particulate emissions shall not exceed 20% opacity, as a 6-minute average, except as provided by rule.

Applicable Compliance Method:

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

4. Emission Limitation:  
Total 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, P032, P035 and P036 combined as a rolling, 12-month summation.

Applicable Compliance Method:

See Part II - State and Federally Enforceable Section A.8.a.i.

5. Emission Limitation:  
Particulate emissions shall not exceed 2.4 tons per year.

Applicable Compliance Method:

Compliance with the annual limit shall be demonstrated by multiplying either the pound per hour emission rate established from the May 1998 stack test or an hourly emission rate derived from an approved compliance test in A.V.2 by 8760 hours of operation and dividing by 2000 pounds per ton.

6. Emission Limitation:  
85% control efficiency for nitrogen oxide emissions

Applicable Compliance Method:

Compliance with this control efficiency will be determined by the testing requirement in Part II - State and Federally Enforceable Section A.8.a.ii.

## 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 with SCR unit and CEM		

**2. Additional Terms and Conditions**

2.a None.

**II. Operational Restrictions**

None.

**III. Monitoring and/or Record keeping Requirements**

None.

**IV. Reporting Requirements**

None.

**V. Testing Requirements**

None.

**VI. Miscellaneous Requirements**

None.