



State of Ohio Environmental Protection Agency

Street Address:

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

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

Mailing Address:

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

07/09/03

CERTIFIED MAIL

**RE: Preliminary Proposed Title V
Chapter 3745-77 permit**

02-43-16-0086
GE Willoughby Quartz Plant
Al Kretz
4901 Campbell Road
Willoughby, OH 44094

Dear Al Kretz:

Enclosed is the Ohio EPA Preliminary Proposed Title V permit that was issued in draft form on (not issued). The comment period for the Draft permit has ended. We are now ready to submit this permit to USEPA for approval.

We are submitting this for your review and comment. If you do not agree with the Preliminary Proposed Title V permit as written, you now have the opportunity to raise your concerns. **Please submit, in writing, any comments you may have within fourteen (14) days from your receipt of this letter to:**

Ohio Environmental Protection Agency
Jim Orlemann, Manager, Engineering Section
Division of Air Pollution Control
P.O.Box 1049
Columbus, OH 43216-1049

and

Northeast District Office
(330) 425-9171

Also, if you believe that it is necessary to have an informal conference with us, then, as part of your written comments, you should request a conference concerning the written comments.

If comments are not submitted within fourteen (14) days of your receipt of this letter, we will forward the proposed permit to USEPA for approval. All comments received will be carefully considered before proceeding to the proposed permit.

Very truly yours,

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

cc: Northeast District Office
File, DAPC PMU



State of Ohio Environmental Protection Agency

PRELIMINARY PROPOSED TITLE V PERMIT

Issue Date: 07/09/03	Effective Date: To be entered upon final issuance	Expiration Date: To be entered upon final issuance
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This document constitutes issuance of a Title V permit for Facility ID: 02-43-16-0086 to:
GE Willoughby Quartz Plant
 2110 East Aurora Road
 Twinsburg, OH 44087

Emissions Unit ID (Company ID)/Emissions Unit Activity Description

B001 (Titusville Boiler #1) Boiler with heat input capacity of 10.9 mmBtu/hr	P029 (TUMBLER 6) Tumbler to remove impurities in sand preparation	P037 (LD Lathe #22) LD Lathe Number 22
B002 (Titusville Boiler #2) Boiler with heat input capacity of 10.9 mmBtu/hr	P031 (CM7) Crucible Machine # 7	P038 (LD Lathe #23) LD Lathe Number 23
P006 (Crucible Machines) Arc Fusion Crucible Machines #5, #6 and #7	P032 (LD Lathe #17) LD Lathe Number 17	P039 (LD Lathe #24) LD Lathe Number 24
P016 (Sintering Furnace) incl mat'l makeup, presint ovens, elect sint furnaces, muffle furn, end plug press	P033 (LD Lathe #18) LD Lathe Number 18	P040 (LD Lathe #25) LD Lathe Number 25
P025 (LD Lathe #16) LD Lathe Number 16	P034 (LD Lathe #19) LD Lathe Number 19	P041 (LD Lathe #26) LD Lathe Number 26
P026 (CM6) Crucible Machine # 6	P035 (LD Lathe #20) LD Lathe Number 20	P042 (LD Lathe #27) LD Lathe Number 27
P027 (TUMBLERS 1-5) Tumblers to remove impurities in sand preparation	P036 (LD Lathe #21) LD Lathe Number 21	P043 (Repair Lathe & Bench Repair Lathe) Repair Lathes and Bench Repair Lathes

You will be contacted approximately eighteen (18) months prior to the expiration date regarding the renewal of this permit. If you are not contacted, please contact the appropriate Ohio EPA District Office or local air agency listed below. This permit and the authorization to operate the air contaminant sources (emissions units) at this facility shall expire at midnight on the expiration date shown above. If a renewal permit is not issued prior to the expiration date, the permittee may continue to operate pursuant to OAC rule 3745-77-04(A) and in accordance with the terms of this permit beyond the expiration date, provided that a complete renewal application is submitted no earlier than eighteen (18) months and no later than one-hundred eighty (180) days prior to the expiration date.

Described below is the current Ohio EPA District Office or local air agency that is responsible for processing and administering your Title V permit:

Northeast District Office
 (330) 425-9171

OHIO ENVIRONMENTAL PROTECTION AGENCY

Christopher Jones
 Director

PART I - GENERAL TERMS AND CONDITIONS

A. *State and Federally Enforceable Section*

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.
(Authority for term: OAC rule 3745-77-07(A)(3)(b)(i))
- 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 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.
(Authority for term: OAC rule 3745-77-07(A)(3)(b)(ii))
- c. The permittee shall submit required reports in the following manner:
 - i. Reports of any required monitoring and/or record keeping information shall be submitted to the appropriate Ohio EPA District Office or local air agency.
(Authority for term: OAC rule 3745-77-07(A)(3)(c))
 - ii. **All reporting required in accordance with the OAC rule 3745-77-07(A)(3)(c) with respect to emission limitations, operational restrictions, and control device operating parameter limitations shall be submitted in the following manner:**
 - (a) Written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations ; (ii) the probable cause of such deviations; and (iii) any corrective actions or preventive measures taken, shall be promptly made to the appropriate Ohio EPA District Office or local air agency. Except as may otherwise be provided in the terms and conditions for a specific emissions unit, i.e., in Part III of this Title V permit, 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. In identifying each deviation, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. These written reports shall satisfy the requirements (in part) of OAC rule 3745-77-07(A)(3)(c)(i) and (ii) pertaining to the submission of monitoring reports every six months and the requirements (in part) of OAC rule 3745-77-07(A)(3)(c)(iii)

pertaining to the prompt reporting of all deviations. See B.6 below if no deviations occurred during the quarter.

(Authority for term: OAC rules 3745-77-07(A)(3)(c)(i), (ii) and (iii))

- (b) Any malfunction, as defined in OAC rule 3745-15-06(B)(1), shall be promptly reported to the Ohio EPA in accordance with OAC rule 3745-15-06. In addition, to fulfill the deviation reporting requirements for this Title V permit, written reports that identify each malfunction that occurred during each calendar quarter shall be submitted, at a minimum, quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year, and shall cover the previous calendar quarters.

In identifying each deviation caused by a malfunction, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. For a specific malfunction, if this information has been provided in a written report that was submitted in accordance with OAC rule 3745-15-06, the permittee may simply reference that written report to identify the deviation. Also, if a deviation caused by a malfunction is identified in a written report submitted pursuant to paragraph (a) above, a separate report is not required for that malfunction pursuant to this paragraph. Nevertheless, all malfunctions, including those reported only verbally in accordance with OAC rule 3745-15-06, must be reported in writing, at a minimum, on a quarterly basis.

Any scheduled maintenance, as defined in OAC rule 3745-15-06(A)(1), that results in a deviation from a federally enforceable emission limitation, operational restriction, and control device operating parameter limitation shall be reported in the same manner as described above for malfunctions. These written reports for malfunctions (and scheduled maintenance projects, if appropriate) shall satisfy the requirements (in part) of OAC rule 3745-77-07(A)(3)(c)(iii) pertaining to the prompt reporting of all deviations.

(Authority for term: OAC rules 3745-77-07(A)(3)(c)(iii))

iii. **For monitoring, record keeping, and reporting requirements:**

Written reports that 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. In identifying each deviation, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. These semi-annual written reports shall satisfy the requirements of OAC rule 3745-77-07(A)(3)(c)(i) and (ii) pertaining to the reporting of any deviations related to the monitoring, record keeping, and reporting requirements. 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.

(Authority for term: OAC rules 3745-77-07(A)(3)(c)(i) and (ii))

- 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 (including any written malfunction reports required by OAC rule 3745-15-06 that are referenced in the deviation reports) are true, accurate, and complete."

(Authority for term: OAC rule 3745-77-07(A)(3)(c)(iv))

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 of any emissions unit(s) 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. Except as provided in OAC rule 3745-15-06, 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 emissions unit(s) that is (are) served by such control system(s).

(Authority for term: OAC rule 3745-77-07(A)(3)(c)(iii))

3. Risk Management Plans

If applicable, the permittee shall 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”); and, pursuant to 40 C.F.R. 68.215(a), the permittee shall submit either of the following:

1. a compliance plan for meeting the requirements of 40 C.F.R. Part 68 by the date specified in 40 C.F.R. 68.10(a) and OAC 3745-104-05(A); or
2. as part of the compliance certification submitted under 40 C.F.R. 70.6(c)(5), a certification statement that the source is in compliance with all requirements of 40 C.F.R. Part 68 and OAC Chapter 3745-104, including the registration and submission of the risk management plan.

(Authority for term: OAC rule 3745-77-07(A)(4))

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.

(Authority for term: OAC rule 3745-77-07(A)(5))

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.

(Authority for term: OAC rule 3745-77-07(A)(6))

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, in accordance with A.10 below. 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.

(Authority for term: OAC rule 3745-77-07(A)(7))

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.

(Authority for term: OAC rule 3745-77-07(A)(8))

8. Marketable Permit Programs

No revision of this permit is required under any approved economic incentive, marketable permits, emissions trading, and other similar programs or processes for changes that are provided for in this permit.

(Authority for term: OAC rule 3745-77-07(A)(9))

9. Reasonably Anticipated Operating Scenarios

The permittee is hereby authorized to make changes among operating scenarios authorized in this permit without notice to the Ohio EPA, but, contemporaneous with making a change from one operating scenario to another, the permittee must record in a log at the permitted facility the scenario under which the permittee is operating. The permit shield provided in these general terms and conditions shall apply to all operating scenarios authorized in this permit.

(Authority for term: OAC rule 3745-77-07(A)(10))

10. Reopening for Cause

This Title V permit will be reopened prior to its expiration date under the following conditions:

- a. Additional applicable requirements under the Act become applicable to one or more emissions units covered by this permit, and this permit has a remaining term of three or more years. Such a reopening shall be completed not later than eighteen (18) months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended pursuant to paragraph (E)(1) of OAC rule 3745-77-08.
- b. This permit is issued to an affected source under the acid rain program and additional requirements (including excess emissions requirements) become applicable. Upon approval by

the Administrator, excess emissions offset plans shall be deemed to be incorporated into the permit, and shall not require a reopening of this permit.

- c. The Director of the Ohio EPA or the Administrator of the U.S. EPA determines that the federally applicable requirements in this permit are based on a material mistake, or that inaccurate statements were made in establishing the emissions standards or other terms and conditions of this permit related to such federally applicable requirements.
- d. The Administrator of the U.S. EPA or the Director of the Ohio EPA determines that this permit must be revised or revoked to assure compliance with the applicable requirements.
(Authority for term: OAC rules 3745-77-07(A)(12) and 3745-77-08(D))

11. 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.

(Authority for term: OAC rule 3745-77-07(B))

12. Compliance Requirements

- a. Any document (including reports) required to be submitted and required by a federally applicable requirement in this Title V 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 paragraph (E) of OAC rule 3745-77-03.
 - 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.
- d. Compliance certifications concerning the terms and conditions contained in this permit that are federally enforceable emission limitations, standards, or work practices, shall be submitted to the Director (the appropriate Ohio EPA District Office or local air agency) and the Administrator of the U.S. EPA in the following manner and with the following content:
- i. Compliance certifications shall be submitted annually on a calendar year basis. The annual certification shall be submitted on or before April 30th of each year during the permit term.
 - ii. Compliance certifications shall include the following:
 - (a) An identification of each term or condition of this permit that is the basis of the certification.
 - (b) The permittee's current compliance status.
 - (c) Whether compliance was continuous or intermittent.
 - (d) The method(s) used for determining the compliance status of the source currently and over the required reporting period.
 - (e) Such other facts as the Director of the Ohio EPA may require in the permit to determine the compliance status of the source.
 - iii. Compliance certifications shall contain such additional requirements as may be specified pursuant to sections 114(a)(3) and 504(b) of the Act.

(Authority for term: OAC rules 3745-77-07(C)(1),(2),(4) and (5) and ORC section 3704.03(L))

13. Permit Shield

- a. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC rule 3745-77-07) shall be deemed compliance with the applicable requirements identified and addressed in this permit as of the date of permit issuance.
- b. This permit shield provision shall apply to any requirement identified in this permit pursuant to OAC rule 3745-77-07(F)(2), as a requirement that does not apply to the source or to one or more emissions units within the source.

(Authority for term: OAC rule 3745-77-07(F))

14. Operational Flexibility

The permittee is authorized to make the changes identified in OAC rule 3745-77-07(H)(1)(a) to (H)(1)(c) within the permitted stationary source without obtaining a permit revision, if such change is not a modification under any provision of Title I of the Act [as defined in OAC rule 3745-77-01(JJ)], and does not result in an exceedance of the emissions allowed under this permit (whether expressed therein as a rate of emissions or in terms of total emissions), and the permittee provides the Administrator of the U.S. EPA and the appropriate Ohio EPA District Office or local air agency with written notification within a minimum of seven days in advance of the proposed changes, unless the change is associated with, or in response to, emergency conditions. If less than seven days notice is provided because of a need to respond more quickly to such emergency conditions, the permittee shall

provide notice to the Administrator of the U.S. EPA and the appropriate District Office of the Ohio EPA or local air agency as soon as possible after learning of the need to make the change. The notification shall contain the items required under OAC rule 3745-77-07(H)(2)(d).

(Authority for term: OAC rules 3745-77-07(H)(1) and (2))

15. Emergencies

The permittee shall have an affirmative defense of emergency to an action brought for noncompliance with technology-based emission limitations if the conditions of OAC rule 3745-77-07(G)(3) are met. This emergency defense provision is in addition to any emergency or upset provision contained in any applicable requirement.

(Authority for term: OAC rule 3745-77-07(G))

16. Off-Permit Changes

The owner or operator of a Title V source may make any change in its operations or emissions at the source that is not specifically addressed or prohibited in the Title V permit, without obtaining an amendment or modification of the permit, provided that the following conditions are met:

- a. The change does not result in conditions that violate any applicable requirements or that violate any existing federally enforceable permit term or condition.
- b. The permittee provides contemporaneous written notice of the change to the Director and the Administrator of the U.S. EPA, except that no such notice shall be required for changes that qualify as insignificant emission levels or activities as defined in OAC rule 3745-77-01(U). Such written notice shall describe each such change, the date of such change, any change in emissions or pollutants emitted, and any federally applicable requirement that would apply as a result of the change.
- c. The change shall not qualify for the permit shield under OAC rule 3745-77-07(F).
- d. The permittee shall keep a record describing all changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes.
- e. The change is not subject to any applicable requirement under Title IV of the Act or is not a modification under any provision of Title I of the Act.

Paragraph (I) of rule 3745-77-07 of the Administrative Code applies only to modification or amendment of the permittee's Title V permit. The change made may require a permit to install under Chapter 3745-31 of the Administrative Code if the change constitutes a modification as defined in that Chapter. Nothing in paragraph (I) of rule 3745-77-07 of the Administrative Code shall affect any applicable obligation under Chapter 3745-31 of the Administrative Code.

(For purposes of clarification, the permittee can refer to Engineering Guide #63 that is available in the STARSHIP software package.)

(Authority for term: OAC rule 3745-77-07(I))

17. Compliance Method Requirements

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defenses otherwise available to the permittee, including but not limited to, any challenge to the Credible Evidence Rule (see 62 Fed. Reg. 8314, Feb. 24, 1997), in the context of any future proceeding.

(This term is provided for informational purposes only.)

18. Insignificant Activities

Each insignificant activity that has one or more applicable requirements shall comply with those applicable requirements.

(Authority for term: OAC rule 3745-77-07(A)(1))

19. Permit to Install Requirement

Prior to the “installation” or “modification” of any “air contaminant source,” as those terms are defined in OAC rule 3745-31-01, a permit to install must be obtained from the Ohio EPA pursuant to OAC Chapter 3745-31.

(Authority for term: OAC rule 3745-77-07(A)(1))

20. 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.

(Authority for term: OAC rule 3745-77-07(A)(1))

B. *State Only Enforceable Section*

1. 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 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 (i) any deviations (excursions) from 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, (ii) the probable cause of such deviations, and (iii) 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. In identifying each deviation, the permittee shall specify the applicable requirement for which the deviation occurred, describe each deviation, and provide the magnitude and duration of each deviation. If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly, i.e., by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

2. Records Retention Requirements

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.

3. Inspections and Information Requests

The Director of the Ohio EPA, or an authorized representative of the Director, may, subject to the safety requirements of the permittee and without undue delay, enter upon the premises of this source at any reasonable time for purposes of making inspections, conducting tests, examining records or reports pertaining to any emission of air contaminants, and determining compliance with any applicable State air pollution laws and regulations and the terms and conditions of this permit. 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 verbal or written request, the permittee shall also furnish to the Director of the Ohio EPA, or an authorized representative of the Director, copies of records required to be kept by this permit.

4. 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 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. 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 emissions unit(s) that is (are) served by such control system(s).

5. 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.

6. 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.

Part II - Specific Facility Terms and Conditions

A. State and Federally Enforcable Section

1. This facility is subject to the applicable requirements specified in OAC Chapter 3745-25. In accordance with Ohio Engineering Guide #64, the emission control action programs, as specified in OAC rule 3745-25-03, shall be developed and submitted within 60 days after receiving notification from the Ohio EPA.
2. All asbestos renovation and demolition activities conducted at this facility shall be performed in accordance with the applicable requirements specified in 40 CFR Part 61 and OAC Chapter 3745-20.
3. FACILITY-WIDE EMISSION LIMITATIONS:

The maximum NOx emissions for all non-trivial emissions units that emit NOx at this facility shall not exceed 248.2 tons per year based upon rolling 12-month summations of the emissions. To ensure enforceability during the first 12 calendar months of operation after issuance of the permit to install, the facility-wide sum of NOx emissions from all NOx emitting emissions units at this facility shall not exceed the following:

Month	NOx Emissions (tons)
1	20.7
1-2	41.4
1-3	62.1
1-4	82.8
1-5	103.5
1-6	124.2
1-7	144.9
1-8	165.6
1-9	186.3
1-10	227.7
1-11	237.5
1-12	248.2

After the first 12 calendar months of operation following the issuance of the permit to install, compliance with the annual NOx emissions limitation shall be based upon rolling 12-month summations of the NOx emissions.

A. State and Federally Enforcable Section (continued)

4. FACILITY-WIDE MONITORING AND RECORD KEEPING REQUIREMENTS

Each month the permittee shall calculate and record the NOx emissions and the rolling, 12-month NOx emissions, as required in Permit to Install number 02-13174, for the following non-trivial emissions units located at this facility. (Non-trivial includes all sources of emissions regardless of size and permit exemption status.)

All NOx emissions from trivial or insignificant sources whose potential has been established, and are not restricted in any way, as described in final PTI #02-13174, are required to be recorded and summed into the facility wide total NOx emissions.

Emission Unit Number

- B001
- B002
- B004
- B008
- B010
- B015
- B016
- B011
- B012
- P001
- P022
- Z002
- Z003
- Z004
- Z005
- Z006
- Z007
- Z008
- Z009
- Z010
- Z011
- Z024
- Z049
- Z050
- Z051
- Z054
- Z055
- Z056
- Z057
- P006

A. State and Federally Enforcable Section (continued)

P011
P014
P016
P024
P025
P026
P029
P030
P031
P032
P033
P038
P039
P040
P041
P042
P043

All calculations for these emissions units shall be performed as specified in the approved application for PTI 02-13174.

5. FACILITY-WIDE REPORTING REQUIREMENTS

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

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

ii. for the first 12 calendar months of operation following the issuance of the PTI, the maximum monthly allowable NOx emissions levels.

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

The permittee shall also submit annual reports that specify the total NOx emissions from each emissions unit listed in Part II.A.4 of this permit and the total NOx emissions from all of the emissions units combined for the previous calendar year. These reports shall include the calculations for each emissions unit and shall be submitted by January 31 of each year.

A. State and Federally Enforcable Section (continued)

6. As of the effective date of this permit, the following rules are not applicable to this facility:
- a. Ohio Administrative Code (OAC) rule 3745-18-06 (C) (General SO₂ Emission Limit Provisions): All process equipment at the Willoughby Quartz Plant are exempt because the process weight input rate for each is less than 1,000 lbs/hr.
 - b. Environmental Protection Agency Code of Federal Regulations (CFR) rule 40 CFR 60 (All New Source Performance Standards (NSPS)): This facility has no emissions units subject to these regulations.
 - c. Environmental Protection Agency Code of Federal Regulations (CFR) rules 40 CFR 61 and 63 (National Emission Standards for Hazardous Air Pollutants (NESHAPs) and NESHAPs for Source Categories: These rules are not applicable because there are no emissions units at this facility in any of the covered source categories, and the facility is not a "major source" for HAPs.
 - d. Environmental Protection Agency Code of Federal Regulations (CFR) rule 40 CFR 64 (Compliance Assurance Monitoring (CAM)): No emissions units at this facility with emission controls have potential uncontrolled emissions that exceed the applicability thresholds of this rule.
 - e. Environmental Protection Agency Code of Federal Regulations (CFR) rule 40 CFR 72 through 78 (Acid Rain Provisions): There are no subject emissions units at this facility.
 - f. Ohio Administrative Code (OAC) rule 3745-17-09 (Odor and Particulate Matter Emissions from Incinerators): There are no incinerators at this facility.
 - g. Ohio Administrative Code (OAC) Chapter 3745-24 (Emission Statements): Lake County is not listed in 3745-24-02 as nonattainment for ozone.
 - h. Ohio Administrative Code (OAC) Chapter 3745-14 (NO_x Budget Trading Program): There are no NO_x budget trading units at this facility per 3745-14-01(C)(1).
 - i. Ohio Administrative Code (OAC) Chapter 3745-71 (Lead Emissions): This regulation applies only to a specific facility named in the regulation, which is not this facility.
 - j. Ohio Administrative Code (OAC) rules 3745-17-12, 13 and 14 (Particulate Matter Emissions for Cuyahoga and Jefferson Counties): This facility is not located in either Cuyahoga or Jefferson Counties.
 - k. Ohio Administrative Code (OAC) rule 3745-18-49 (SO₂ Emissions in Lake County): This facility is not named in this rule.
 - l. Ohio Administrative Code (OAC) rule 3745-21-11: This facility does not have the potential to emit 100 tons or greater per year of VOC.

B. State Only Enforceable Section

1. The following insignificant emissions units are located at this facility:

B008--Emergency generators #1 and #2
B010--Emergency generator #3
B011--North natural gas engine
B012--South natural gas engine
P001--Sand prep-calciners 1-5 (natural gas)(de minimis), magnetic separator #1, upflush drums]
P003--Dry cutting saws 1, 2, and 3 with Carter Day baghouse
P008--Zero Blast-n-Reen sand blaster
P009--Tasc cleaners-aqueous
P011--Tubing furnaces #1-#4 (type B) and #5 and #6 (type I)
P014--Presintering ovens w/fume incinerator (1-4) Harrop combined
P015--8 wet cut saws (Lucalox finishing)
P017--Lucalox spray dryer room with mixer, dryer with baghouse, sifter, and blender
P018--Sand blasters (2) in P-14 room
P020--Electric sand dryers #21-#29
P021--Magnetic separator #2
P022--Calciner #6 (electric)
P023--Vacuum bake ovens #1-#5
P024--Tubing furnaces #7-#9 (type B) and #100
Z002--Natural gas calciner # 7
Z003--Natural gas calciner # 8
Z004--Natural gas calciner # 9
Z005--Natural gas calciner # 10
Z006--Natural gas calciner # 11
Z007--Natural gas calciner # 12
Z008--Natural gas calciner # 13
Z009--Natural gas calciner # 14
Z010--Natural gas calciner # 15
Z011--Natural gas calciner # 16
Z012--Magnetic separators numbers 3, 4, and 5
Z013--HFS 5000-gallon steel tank
Z014--HFS storage tank # 1
Z015--HFS storage tank # 2
Z016--HFS storage tank # 3
Z017--HFS storage tank #4
Z018--HF storage tank # 1
Z019--HF storage tank # 2

B. State Only Enforceable Section (continued)

Z020--HCl storage tank # 1
Z021--HCl storage tank # 2
Z022--Crucible belt grinder
Z023--2-Crucible wet-cutting saws
Z024--Tube drawing furnaces numbers 16-21 (type I)
Z025--Vacuum bake ovens numbers 6-11
Z030--Feedstock saw
Z031--Finishing saw
Z032--Crucible wash tank # 64 A1 containing 5% HF
Z034--Finished stock wash tank containing 5% HF
Z035--Feedstock LD wash tank containing 10% HF
Z036--FAB areas wash tank containing 5% HF
Z037--LD tubes manual cleaning
Z038--CMH saw with dust collector
Z039--Solvent parts cleaner for Lucalox
Z040--Wet cut saws numbers 1-4 and FO saw
Z041--Emergency Generator # 4
Z042--Natural gas engine (southwest)
Z043--Diesel fuel storage tank # 2
Z044--Lucalox mixer # 2 and extruder # 3
Z046--CB Boiler 1
Z047--CB Boiler 2
Z048--North South Bladders
Z049--Nabertherm Ovens
Z050--Harper Presintering Oven
Z051--Tubing furnaces 52-54
Z052--Vacuum Bake oven 12-13

Each insignificant emissions unit at this facility must comply with all applicable State and federal regulations, as well as any emission limitations and/or control requirements contained within a Permit to Install for the emissions unit.

Part III - Terms and Conditions for Emissions Units

Emissions Unit ID: Titusville Boiler #1 (B001)
Activity Description: Boiler with heat input capacity of 10.9 mmBtu/hr

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B001-Titusville natural gas fired boiler (10.9 MMBtu/hr)	OAC rule 3745-31-05(D) PTI #02-13174 (synthetic minor)	Oxides of nitrogen (NOx) from this emissions unit shall not exceed 1.04 pounds per hour and the combined NOx emissions from emissions units B001 and B002 shall not exceed 6.1 tons per year based on rolling, 12-month summations.
	OAC rule 3745-17-10(B)(1)	Particulate emissions from this boiler shall not exceed 0.020 pound per million Btu.
	OAC rule 3745-17-07(A)	Visible particulate emissions from this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-21-08	See A.I.2.b.
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

- 2.a OAC rule 3745-18-06 does not establish sulfur dioxide emission limitations for the fuel burning equipment associated with this emissions unit because the emissions unit only employs natural gas as fuel.

2. Additional Terms and Conditions (continued)

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

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

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit.
2. The maximum quantity of natural gas burned in emissions units B001 and B002, combined, shall not exceed 122 million standard cubic feet of natural gas per year, based on rolling 12-month summations of the fuel usages. To ensure enforceability of this provision during the first twelve (12) months following final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas usage restrictions:

CALENDAR MONTHS	ALLOWABLE CUMULATIVE TOTAL VOLUME of NATURAL GAS USAGE (B001 and B002 COMBINED)
(months)	(MMscf)
1-1	10
1-2	20
1-3	30
1-4	40
1-5	50
1-6	60
1-7	70
1-8	80
1-9	90
1-10	100
1-11	110
1-12	122

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas usage limitation based on rolling, 12-month summations of the fuel usages.

III. Monitoring and/or Record Keeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall properly operate and maintain a natural gas flow meter on the individual natural gas supply line for this emissions unit to allow for accurate determinations and subsequent monitoring and record keeping of the natural gas fuel consumption.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall monitor and record the following information for emissions units B001 and B002 combined, on a monthly basis:
 - a. the total amount of natural gas used, in mmscf;
 - b. the total amount of NO_x emitted per month;
 - c. after the first twelve months of operation following the final issuance of PTI #02-13174, the total amount of natural gas used, in mmscf, based on a rolling, 12-month summation; and
 - d. after the first twelve months of operation following the final issuance of PTI #02-13174, the total amount of NO_x emitted, in tons, based on a rolling, 12-month summations of the monthly emissions.

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

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

Also, during the first 12 months of operation following the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas usage, in mmscf, for each calendar month.

IV. Reporting Requirements

1. All reports or notifications shall be submitted to the Northeast District Office of the Ohio EPA as required in Section A.1.c. of the General Terms and Conditions of this Permit unless otherwise stated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify for emissions units B001 and B002, combined, each record showing an exceedance of:
 - a. the rolling, 12-month restriction for fuel usage; and/or
 - b. the rolling 12-month NO_x emission limitation.
3. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.

Each report shall be submitted within 30 days after the deviation occurs.

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

V. Testing Requirements

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

V. Testing Requirements (continued)

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.020 pound of particulate emissions per mmBtu of actual heat input

Applicable Compliance Method

For the use of natural gas, compliance shall be determined by dividing the AP-42 (Fifth Edition, Table 1.4-2, 7/98) emission factor for natural gas combustion (1.9 lbs/mm³ ft) by the heating value of natural gas (1020 Btu/cu ft).

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

1.c Emission Limitation:

1.04 lbs per hour for this emissions unit alone, and 6.1 tons per year for emissions units B001 and B002 combined, based on a rolling 12-month summation of the NO_x emissions

Applicable Compliance Method:

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

Compliance with the pound per hour emission limitation shall be demonstrated by multiplying the maximum hourly heat input capacity of the boiler (10.9 MMBtu/hr) by the emission factor from "Compilation of Air Pollutant Emission Factors", Table 1.4-1 (7/98) for natural gas combustion (100 lbs of NO_x per million cubic feet), and dividing by the heat content of natural gas (1020 Btu/ft³). If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60 Appendix A, Methods 1-4 and 7.

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: Titusville Boiler #2 (B002)
Activity Description: Boiler with heat input capacity of 10.9 mmBtu/hr

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
B002-Titusville natural gas fired boiler (10.9 MMBtu/hr)	OAC rule 3745-31-05(D) PTI #02-13174 (synthetic minor)	Oxides of nitrogen (NOx) from this emissions unit shall not exceed 1.04 pounds per hour and the combined NOx emissions from emissions units B001 and B002 shall not exceed 6.1 tons per year based on rolling, 12-month summations.
	OAC rule 3745-17-10(B)(1)	Particulate emissions from this boiler shall not exceed 0.020 pound per million Btu.
	OAC rule 3745-17-07(A)	Visible particulate emissions from this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-21-08	See A.I.2.b.
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

- 2.a OAC rule 3745-18-06 does not establish sulfur dioxide emission limitations for the fuel burning equipment associated with this emissions unit because the emissions unit only employs natural gas as fuel.

2. Additional Terms and Conditions (continued)

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

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

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit.
2. The maximum quantity of natural gas burned in emissions units B001 and B002, combined, shall not exceed 122 million standard cubic feet of natural gas per year, based on rolling 12-month summations of the fuel usages. To ensure enforceability of this provision during the first twelve (12) months following final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas usage restrictions:

CALENDAR MONTHS	ALLOWABLE CUMULATIVE TOTAL VOLUME of NATURAL GAS USAGE (B001 and B002 COMBINED)
(months)	(MMscf)
1-1	10
1-2	20
1-3	30
1-4	40
1-5	50
1-6	60
1-7	70
1-8	80
1-9	90
1-10	100
1-11	110
1-12	122

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas usage limitation based on rolling, 12-month summations of the fuel usages.

III. Monitoring and/or Record Keeping Requirements

1. For each day during which the permittee burns a fuel other than natural gas, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
2. The permittee shall properly operate and maintain a natural gas flow meter on the individual natural gas supply line for this emissions unit to allow for accurate determinations and subsequent monitoring and record keeping of the natural gas fuel consumption.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall monitor and record the following information for emissions units B001 and B002 combined, on a monthly basis:
 - a. the total amount of natural gas used, in mmscf;
 - b. the total amount of NO_x emitted per month;
 - c. after the first twelve months of operation following the final issuance of PTI #02-13174, the total amount of natural gas used, in mmscf, based on a rolling, 12-month summation; and
 - d. after the first twelve months of operation following the final issuance of PTI #02-13174, the total amount of NO_x emitted, in tons, based on a rolling, 12-month summations of the monthly emissions.

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

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

Also, during the first 12 months of operation following the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas usage, in mmscf, for each calendar month.

IV. Reporting Requirements

1. All reports or notifications shall be submitted to the Northeast District Office of the Ohio EPA as required in Section A.1.c. of the General Terms and Conditions of this Permit unless otherwise stated.
2. The permittee shall submit quarterly deviation (excursion) reports that identify for emissions units B001 and B002, combined, each record showing an exceedance of:
 - a. the rolling, 12-month restriction for fuel usage; and/or
 - b. the rolling 12-month NO_x emission limitation.
3. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.

Each report shall be submitted within 30 days after the deviation occurs.

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

V. Testing Requirements

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

V. Testing Requirements (continued)

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.020 pound of particulate emissions per mmBtu of actual heat input

Applicable Compliance Method

For the use of natural gas, compliance shall be determined by dividing the AP-42 (Fifth Edition, Table 1.4-2, 7/98) emission factor for natural gas combustion (1.9 lbs/mm³ ft) by the heating value of natural gas (1020 Btu/cu ft).

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

1.c Emission Limitation:

1.04 lbs per hour for this emissions unit alone, and 6.1 tons per year for emissions units B001 and B002 combined, based on a rolling 12-month summation of the NO_x emissions

Applicable Compliance Method:

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

Compliance with the pound per hour emission limitation shall be demonstrated by multiplying the maximum hourly heat input capacity of the boiler (10.9 MMBtu/hr) by the emission factor from "Compilation of Air Pollutant Emission Factors", Table 1.4-1 (7/98) for natural gas combustion (100 lbs of NO_x per million cubic feet), and dividing by the heat content of natural gas (1020 Btu/ft³). If required, the permittee shall demonstrate compliance with this emission limitation in accordance with 40 CFR Part 60 Appendix A, Methods 1-4 and 7.

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: Crucible Machines (P006)
Activity Description: Arc Fusion Crucible Machines #5, #6 and #7

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
Electric Crucible machine # 5 including vacuum pumps, each with a mist eliminator, and the crucible forming enclosure vent, cutting station and cooling table (P006)	OAC rule 3745-31-05(A)(3) and (D) and PTI #02-13174 (synthetic minor)	Nitrogen oxides (NOx) emissions from this emissions unit shall not exceed 1.36 pounds per hour and 1.0 ton per rolling, 12-month period.
		The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 2.4 tons per year.
		The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-17-11(B), 3745-21-08, and 3745-23-06(B).
		Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average.
		Reasonably available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust shall be employed for this emissions unit. (See A.I.2.b.)
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-08(B)	See A.I.2.d.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-17-11(B)(1)	The total particulate emissions, from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 0.551 pound per hour based on Table I of OAC rule 3745-17-11 (with a maximum process weight rate of 100 pounds per hour). See Section A.1.2.a.
	OAC rule 3745-21-08	See A.1.2.c.
	OAC rule 3745-23-06(B)	See A.1.2.c.

2. Additional Terms and Conditions

- 2.a** This emissions unit includes crucible machine number 5 only and associated control and process equipment.
- 2.b** The permittee shall minimize or eliminate visible emissions of fugitive dust through the employment of reasonably available control measures (RACM). These measures shall include, but not be limited to, the following:
 - i. the use of adequate hooding or equivalent capture devices for the crucible filling, arc fusion, and crucible cooling operations, for the sand storage and transfer equipment, and for the equipment used to mechanically finish quartz crucibles and tubing including, but not limited to saws, sanders, bevelers, trimmers and grinders; and
 - ii. all fugitive dust captured shall be vented to the baghouses.

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

- 2.c** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

- 2.d** This facility is not located in an Appendix A area; therefore, in accordance with OAC rule 3745-17-08(A)(1), OAC rule 3745-17-08(B) is not applicable to this emissions unit.
- 2.e** All NOx emissions shall be vented to stacks.

II. Operational Restrictions

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

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

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

The maximum rate of NOx emissions for P006 alone shall not exceed 1 ton per year, based on rolling, 12-month summations of the monthly emissions.

To ensure enforceability of this provision during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following crucible production restrictions and emission limitations:

YEAR/MONTH (after final PTI issuance)	TOTAL CUMULATIVE ALLOWABLE CRUCIBLES PRODUCED (P006 only)	TOTAL CUMULATIVE NOx (TPY) (P006 only)
1-1	2222	0.33
1-2	4444	0.39
1-3	6666	0.45
1-4	8888	0.51
1-5	11,110	0.57
1-6	13,332	0.63
1-7	15,554	0.70
1-8	17,776	0.76
1-9	19,998	0.82
1-10	22,220	0.88
1-11	24,442	0.94
1-12	26,667	1.00

3. After the first twelve calendar months of operation, after the final issuance of PTI #02-13174, compliance with the annual crucible production restriction of 26,667 and the NOx emission limitation of 1 ton per year, shall be based upon rolling, twelve-month summations of the crucible production rates and the NOx emission figures.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible fugitive particulate emissions from the building egress points (i.e., building windows, doors, roof monitors, etc) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operation log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the location(s) and color(s) of the emissions;
 - b. whether the emissions are representative of normal conditions;
 - c. if the emissions are not representative of normal operations, the cause(s) of the abnormal emissions;
 - d. the total duration of any visible emission incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

2. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
3. The permittee shall properly operate and maintain equipment to monitor the pressure drop across the mist eliminators while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the mist eliminators on a daily basis.

III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following for this emissions unit:
 - a. the number of crucibles produced;
 - b. beginning after the first 12 calendar months of operation following the issuance of PTI #02-13174, the rolling, 12-month summation of the crucible production figures;
 - c. the total emissions of NO_x, in tons, calculated in accordance with the calculations attached to PTI #02-13174;
 - d. the hours of operation;
 - e. the average hourly NO_x emission rate, in lbs/hr; and
 - f. beginning after the first 12 calendar months of operation following the final issuance of PTI #02-13174, the rolling, 12-month summation of the NO_x emissions, in tons [the permittee shall calculate the rolling, 12-month NO_x emissions by multiplying the emission factor for crucible production from the most recent witnessed stack test (in lbs NO_x/crucible) by the rolling total number of crucibles produced during the 12-month period, and dividing by 2000 lbs/ton].

Also, during the first 12 calendar months of operation after the final issuance of PTI #02-13174, the permittee shall record the cumulative crucible production and NO_x emissions for this emissions unit for each calendar month.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible fugitive particulate emissions were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and
 - b. describe any corrective actions taken to minimize or eliminate the visible fugitive particulate emissions.

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

2. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stack serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

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

IV. Reporting Requirements (continued)

4. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitation on crucible production;
 - b. the rolling, 12-month NOx emission limitation;
 - c. for the first 12 calendar months of operation following the final issuance of PTI # 02-13174, the maximum allowable, monthly cumulative crucible production levels;
 - d. for the first 12 calendar months of operation following the final issuance of PTI # 02-13174, the maximum allowable, monthly cumulative NOx emissions levels; and
 - e. the hourly NOx emission limitation.

5. The permittee shall submit annual reports that summarize the following information:
 - a. the annual crucible production rate for this emissions unit; and
 - b. the total annual emissions of NOx from this emissions unit.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 of each year and shall cover the previous 12-month period.

V. Testing Requirements

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

- 1.a Emission Limitation

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

Applicable Compliance Method

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

- 1.b Emission Limitation

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

Applicable Compliance Method

Compliance with the above visible emission limitation shall be determined using Method 9 of 40 CFR, Part 60, Appendix A.

V. Testing Requirements (continued)

1.c Emission Limitation

0.551 pound per hour of particulate emissions, based on Table I of OAC rule 3745-17-11 and a maximum process weight (PWR) of 100 pounds per hour, and 2.4 tons per year particulate emissions;

Applicable Compliance Method

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

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

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

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

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

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

1.d Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly emission rate shall be demonstrated by the record keeping in A.III.5. and by emission testing using the following test methods:

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

The permittee shall calculate the rolling, 12-month NO_x emissions by multiplying the emission factor for crucible production from the most recent witnessed stack test (in lbs NO_x/crucible) by the rolling total number of crucibles produced during the 12-month period, and dividing by 2000 lbs/ton.

V. Testing Requirements (continued)

2.a Emission Testing Requirements

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

- i. The emission testing shall be conducted within 6 months after the issuance of this permit and shall be conducted again within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted for each uncontrolled stack and each mist eliminator outlet and shall be conducted to demonstrate compliance with the allowable hourly mass emission for particulate emissions and the allowable hourly mass emission rate for NO_x emissions, and to determine a NO_x emission factor for crucible production. For the purposes of emission testing, the crucible forming enclosure vent and vacuum pumps emissions shall be included in the compliance determination.
- iii. The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rates for particulate emissions and NO_x and to determine the emission factor for NO_x:

Methods 1-5 and 7 of 40 CFR Part 60, Appendix A.
- iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, with respect to arc strength in kw-hr and the surface area of the crucibles, unless otherwise specified or approved by the Northeast District Office of the Ohio EPA. In addition, during each test run, pressure drop across each of the mist eliminators shall be recorded every 5 minutes so that an allowable pressure drop or pressure drop range may be established.

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

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

- 2.c** Personnel from the Northeast District Office of the Ohio EPA and local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- 2.d** A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: Sintering Furnace (P016)

Activity Description: incl mat'l makeup, presint ovens, elect sint furnaces, muffle furn, end plug press

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
Lucalox presintering operation including mixing and extruding, the Dorst presses, 4 (four) Harrop electric ovens, and 2 (two) associated thermal oxidizers (A serving ovens 1 and 2, and B serving ovens 3 and 4) for the production of pre-sintered ceramic tubing and end plugs (P016)	OAC rule 3745-31-05(A)(3) PTI #02-1204	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-17-11(B), 3745-21-07(G)(2), 3745-21-07(G)(6), 3745-21-08, and 3745-23-06. The total particulate emissions from the stacks serving or associated with this emissions unit shall not exceed 2.4 tons per year. Emissions of organic compounds from this emissions unit, including cleanup, shall not exceed 7.3 tons per year.
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack serving this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The total particulate emissions shall not exceed 0.551 pound per hour, based on Table I of OAC rule 3745-17-11 at a maximum process weight rate of 100 pounds per hour.
	OAC rule 3745-21-07(G)(2)	Emissions of organic compounds from this emissions unit, including cleanup, shall not exceed 8 pounds per hour and 40 pounds per day, unless said discharge has been reduced by at least 85%.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-21-07(G)(6)	Ninety percent or more of the carbon in the organic material being incinerated shall be oxidized to carbon dioxide.
	OAC rule 3745-21-08	See A.I.2.b.
	OAC rule 3745-23-06	See A.I.2.b.

2. Additional Terms and Conditions

- 2.a** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

II. Operational Restrictions

1. The average combustion temperature within each thermal oxidizer, for any 3-hour block of time when the emissions unit was in operation, shall not be more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit was in compliance.

The permittee shall operate the two Trane thermal oxidizers in accordance with the manufacturer's specifications and good engineering practices.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall operate and maintain a continuous temperature monitor and recorder which measures and records the combustion temperature within each thermal oxidizer when the emissions unit is in operation. Units shall be in degrees Fahrenheit. The monitoring and recording devices shall be capable of accurately measuring the combustion temperature. The temperature monitor and recorder shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, with any modifications deemed necessary by the permittee.

The permittee shall collect and record the following information for each day the emissions unit is in operation:

- a. All 3-hour blocks of time during which the average combustion temperature within each thermal oxidizer, when the emissions unit was in operation, was more than 50 degrees Fahrenheit below the average temperature during the most recent emission test that demonstrated that the emissions unit was in compliance.
- b. A log or record of the downtime for the capture (collection) system, control devices, and monitoring equipment, when the associated emissions unit was in operation.

III. Monitoring and/or Record Keeping Requirements (continued)

2. The permittee shall collect and record the following information each day for this emissions unit:
 - a. The company identification for each process material, including liquid binder and solvent, and cleanup material employed.
 - b. The number of gallons of each process material, including liquid binder and solvent, and cleanup material employed.
 - c. The organic compound content of each process material, including liquid binder and solvent, and cleanup material employed, in pounds per gallon.
 - d. The total uncontrolled organic compound emission rate for all process materials, including liquid binders and solvents, and for all cleanup materials employed, in pounds.
 - e. The total controlled organic compound emission rate for all process materials, including liquid binders and solvents, and cleanup materials, in pounds per day (i.e., calculated using the overall control efficiency from the most recent performance test that demonstrated that the emissions unit was in compliance).
 - f. The total number of hours the emissions unit was in operation.
 - g. The average hourly controlled organic compound emission rate for all process materials and cleanup materials, i.e., (e)/(f), in pounds per hour (average).

[Note: The process material information shall be maintained for the materials as employed, including any solvents added at the emissions unit.

IV. Reporting Requirements

1. The permittee shall submit quarterly deviation (excursion) reports that include the following information for this emissions unit:
 - a. An identification of each day during which the average hourly controlled organic compound emissions exceeded 8 pounds per hour, and the actual average hourly controlled organic compound emissions for each such day.
 - b. An identification of each day during which the controlled organic compound emissions exceeded 40 pounds per day, and the actual controlled organic compound emissions for each such day.
2. The permittee shall submit quarterly deviation (excursion) reports that identify all 3-hour blocks of time during which the average combustion temperature within each thermal oxidizer, when the emissions unit was in operation, was less than the level specified in section A.II.1.
3. The permittee shall submit the quarterly deviation (excursion) reports in accordance with paragraph A.I.c. of the General Terms and Conditions of this permit.
4. The permittee shall submit quarterly summaries that include a log of the downtime for the capture (collection) system, control device, and monitoring equipment, when the associated emissions unit was in operation. These summaries shall be submitted by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

V. Testing Requirements

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

V. Testing Requirements (continued)

1.a Emission Limitation

0.551 pound per hour, and 2.4 tons per year total particulate emissions, based on Table I of OAC rule 3745-17-11 at a maximum process weight rate (PWR) of 100 pounds per hour.

Applicable Compliance Method

If required, the permittee shall demonstrate compliance through emission testing, in accordance with the 40 CFR Part 60, Method 1-5, and the procedures specified in OAC rule 3745-17-03(B)(10).

The permittee shall demonstrate compliance with the tons per year limitation by multiplying the actual hourly emission rate by the actual hours of operation during the year and dividing by 2000.

1.b Emission Limitation

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

Applicable Compliance Method

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

1.c Emission Limitation

8 pounds per hour and 40 pounds per day of organic compounds unless said discharge has been reduced by at least 85%

Applicable Compliance Method

Compliance with the organic compound emission limit above shall be determined in accordance with OAC rule 3745-21-10(C) and Method 25 or Method 25A of 40 CFR Part 60, Appendix A.

Compliance with the controlled hourly and daily organic compound emission limits also shall be demonstrated based on the record keeping requirements contained in Section A.III.2. of this permit.

1.d Emission Limitation

Ninety percent or more of the carbon in the organic material being incinerated shall be oxidized to carbon dioxide.

Applicable Compliance Method

Compliance with the organic compound emission limit above shall be determined in accordance with OAC rule 3745-21-10(C) and Method 25 or Method 25A of 40 CFR Part 60, Appendix A

V. Testing Requirements (continued)

2. Emission Testing Requirements

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

- a. The emission testing shall be conducted 6 months after the issuance of this permit and within 6 months prior to permit expiration.
- b. The emission testing shall be conducted to determine compliance with the allowable hourly mass emission rates for OC and for particulate emissions and the ninety per cent destruction efficiency requirement for OC.
- c. The following test method(s) shall be employed:

Method 25 or 25A of 40 CFR Part 60, Appendix A, and 40 CFR Part 51, Appendix M, Method 204; and

Methods 1-5, 40 CFR Part 60, Appendix A, and the procedures specified in OAC rule 3745-17-03(B)(10).

Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA. The test method and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

- d. The capture efficiency shall be determined using Methods 204 through 204F, as specified in 40 CFR Part 51, Appendix M, or the permittee may request to use an alternative method or procedure for the determination of capture efficiency in accordance with the USEPA's "Guidelines for Determining Capture Efficiency," dated January 9, 1995. (Ohio EPA will consider the request, including an evaluation of the applicability, necessity, and validity of the alternative, and may approve the use of the alternative if such approval does not contravene any other applicable requirement.) The control efficiency (i.e., the percent reduction in mass emissions between the inlet and outlet of the control system) shall be determined in accordance with the test methods and procedures specified in OAC rule 3745-21-10. The test methods and procedures selected shall be based on a consideration of the diversity of the organic species present and their total concentration, and on a consideration of the potential presence of interfering gases.

- e. 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 Northeast District Office of the Ohio EPA.

V. Testing Requirements (continued)

f. The permittee shall continuously measure and record the temperature within each thermal oxidizer during each test run.

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

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

Personnel from the Northeast District Office of the Ohio EPA 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 Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

3. Formulation data or USEPA Method 24, or any alternate method approved by the EPA, shall be used to determine the organic compound contents of process and cleanup materials.

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #16 (P025)
Activity Description: LD Lathe Number 16

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P025 - Large diameter lathe number 16 (natural gas fired) 1.26 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NO_x emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas-fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 "Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #16 (P025)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: CM6 (P026)

Activity Description: Crucible Machine # 6

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
Electric Crucible machine # 6, equipped with a Torit primary baghouse, and sand feed systems, equipped with a Fabrimax-Filter primary baghouse, a Spencer-Filter secondary baghouse, and a mist eliminator, also including the auxilliary blockhouse vent and vacuum pumps (P026)	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	<p>Nitrogen oxides (NOx) emissions from this emissions unit shall not exceed 19.48 pounds per hour and 15.9 tons per rolling, 12-month period.</p> <p>See A.1.2.f. and A.1.2.g.</p> <p>The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 7.1 tons per year.</p> <p>Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average.</p> <p>Reasonably available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust shall be employed for this emissions unit. (See A.1.2.b.)</p> <p>The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-17-11(B), 3745-21-08, and 3745-23-06(B).</p>

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-17-07(A)	Visible particulate emissions from the stacks serving this emissions unit, including the outlets from the three baghouses, shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-08(B)	See A.I.2.d.
	OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 1.62 pounds per hour based on Table I of OAC rule 3745-17-11(with a maximum process weight rate of 500 pounds per hour). See Section A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b
	OAC rule 3745-23-06(B)	See A.I.2.c.

2. Additional Terms and Conditions

- 2.a** This emissions unit includes crucible machine number 6 only and associated control and process equipment.
- 2.b** The permittee shall minimize or eliminate visible emissions of fugitive dust through the employment of reasonably available control measures (RACM). These measures shall include, but not be limited to, the following:
 - i. the use of adequate hooding or equivalent capture devices for the crucible filling, arc fusion, and crucible cooling operations, for the sand storage and transfer equipment, and for the equipment used to mechanically finish quartz crucibles and tubing including, but not limited to saws, sanders, bevelers, trimmers and grinders; and
 - ii. all fugitive dust captured shall be vented to the baghouses.

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

2. Additional Terms and Conditions (continued)

2.c The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

2.e All NOx emissions shall be vented to stacks.

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

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

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

The following are the current NOx emission factors provided on page 63 of 59 of the addendum to the PTI application #02-13174 received at Ohio EPA on February 5, 2002:

12 inch crucibles(510/520)	0.63	pound/crucible
12 inch crucibles(530)	0.99	pound/crucible
14 inch crucibles(510/520)	1.65	pounds/crucible
14 inch crucibles(530)	2.19	pounds/crucible
16 inch crucibles(510/520)	2.57	pounds/crucible
16 inch crucibles(530)	2.12	pounds/crucible
18 inch crucibles	2.85	pounds/crucible

To ensure enforceability of this provision during the first twelve (12) months of operation following the final issuance of PTI 02-13174, the permittee shall not exceed the following cumulative NOx emission limitations:

2. Additional Terms and Conditions (continued)

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

2.g After the first twelve calendar months of operation, after the final issuance of PTI 02-13174, compliance with the NOx combined emissions limitation of 31.8 tons per year, shall be based upon rolling, twelve-month summations of the NOx emission rates.

II. Operational Restrictions

1. The pressure drop, in inches of water column, for each of the baghouses (Torit, Torit Fibrimax, and the Spencer) and the mist eliminator, while the emissions unit is in operation, shall be maintained within the range that was established during the most recent emission test that demonstrated the emissions unit was in compliance.

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

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible fugitive particulate emissions from the building egress points (i.e., building windows, doors, roof monitors, etc) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operation log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the location(s) and color(s) of the emissions;
 - b. whether the emissions are representative of normal conditions;
 - c. if the emissions are not representative of normal operations, the cause(s) of the abnormal emissions;
 - d. the total duration of any visible emission incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

2. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
3. The permittee shall properly operate and maintain equipment to monitor the pressure drop across each baghouse and mist eliminator while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across each baghouse and the mist eliminator on a daily basis.

III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the number of crucibles of each size produced;
 - b. the NO_x emission factor for each size of crucible produced;
 - c. the total NO_x emissions from all crucibles produced, in pounds and tons;
 - d. the rolling 12- month summation of the NO_x emissions, in tons;
 - e. beginning after the first 12 calendar months of operation following the final issuance of PTI #02-13174, the rolling, 12-month summation of the NO_x emissions, in tons;
 - f. beginning after the first 12 calendar months of operation following the final issuance of PTI #02-13174, the rolling, 12-month summation of the NO_x emissions for emissions units P026 and P031, combined, in tons;
 - g. the hours of operation; and
 - h. the average hourly NO_x emission rate, in pounds per hour.

Also, during each of the first 12 calendar months of operation after the final issuance of PTI #02-13174, the permittee shall calculate and record the cumulative NO_x emissions for emissions units P026 and P031, combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible fugitive particulate emissions were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and
 - b. describe any corrective actions taken to minimize or eliminate the visible fugitive particulate emissions.

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

2. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

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

IV. Reporting Requirements (continued)

4. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month NOx emission limitation for this emissions unit;
 - b. for the first 12 calendar months of operation following the final issuance of PTI #02-13174, the allowable, monthly, cumulative NOx emission limitation for emissions units P026 and P031, combined;
 - d. after the first 12 calendar months of operation following the final issuance of PTI 02-13174, the rolling, 12-month NOx emission limitation for P026 and P031, combined; and
 - e. the hourly NOx emission limitation.
5. The permittee shall submit annual reports that summarize the the total annual emissions of NOx from this emissions unit.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 of each year and shall cover the previous 12-month period.

V. Testing Requirements

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

- 1.a Emission Limitation

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

Applicable Compliance Method

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

- 1.b Emission Limitation

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

Applicable Compliance Method

Compliance with the above visible emission limitation shall be determined using Method 9 of 40 CFR, Part 60, Appendix A.

V. Testing Requirements (continued)

1.c Emission Limitation

1.62 pounds per hour of particulate emissions, based on Table I of OAC rule 3745-17-11 and a maximum process weight (PWR) of 500 pounds per hour, and 7.1 tons per year particulate emissions;

Applicable Compliance Method

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

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

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

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

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

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

1.d Emission Limitation

- i. The allowable hourly NO_x emission rate of 19.48 pounds per hour.
- ii. The allowable rolling, 12-month NO_x emission rate of 15.9 ton.

Applicable Compliance Method

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

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

The permittee shall calculate the rolling, 12-month NO_x emissions and demonstrate compliance with the NO_x emission limitation by multiplying the emission factor for crucible production [from the most recent witnessed stack test (in lbs NO_x/crucible)] by the rolling total number of crucibles produced during the 12-month period (from the record keeping in A.III.4), and dividing by 2000 lbs/ton.

1.e Emission Limitation

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

Applicable Compliance Method

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

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

V. Testing Requirements (continued)

2.a Emission Testing Requirements

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

- i. The emission testing shall be conducted within 3 months after the issuance of this permit and shall be conducted again within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted for each uncontrolled stack and each baghouse inlet and outlet and shall be conducted to demonstrate compliance with the allowable hourly mass emission rate for particulate emissions, the allowable hourly mass emission rate for NO_x emissions, and to determine the NO_x emission factors for crucible production. For the purposes of emission testing, the auxiliary blockhouse vent and vacuum pumps emissions shall be included in the compliance determination.
- iii. The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rates for particulate emissions and NO_x and to determine emission factors for NO_x:

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

iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, with respect to arc strength in kw-hr and the surface area of the crucibles, unless otherwise specified or approved by the Northeast District Office of the Ohio EPA. In addition, during each test run, pressure drop across each of the baghouses shall be recorded every 5 minutes so that an allowable pressure drop or pressure drop range may be established.

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

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

- 2.c** Personnel from the Northeast District Office of the Ohio EPA and local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- 2.d** A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: TUMBLERS 1-5 (P027)
Activity Description: Tumblers to remove impurities in sand preparation

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
Tumblers numbers 1-5 to remove sand impurities, equipped with a Heil packed bed scrubber(See A.I.2.a.)	OAC rule 3745-31-05(A)(3) PTI # 02-8946 (modification of PTI #02-6199 with tumbler #5 addition); PTI #02-1369	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A) and 3745-17-11(B)(1). There shall be no visible particulate emissions from this emissions unit. Total particulate emissions from P001 and P027, [from tumblers 1-5, and 6 (P029)] shall not exceed 0.030 grain/dscf, 3.84 pounds per hour, and 16.82 tons per year. Particulate emissions shall include HCl and HF acid mist, hydrofluoric silicate acid, and sand. 99.3% particulate removal efficiency for the fume scrubber (See A.I.2.a.)
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-07(A)	The opacity limitation specified by this rule is less stringent than the opacity limitation established pursuant to OAC rule 3745-31-05(A)(3).

2. Additional Terms and Conditions

- P027 includes tumbler numbers 1-5 and P029 includes tumbler 6, all of which are vented to the Heil packed bed scrubber.

2. Additional Terms and Conditions (continued)

2.b All particulate emissions from this emissions unit shall be vented to the Heil packed bed scrubber.

II. Operational Restrictions

1. The permittee shall operate the packed bed scrubber associated with this emissions unit at all times while the emissions unit is in operation such that:
 - a. the minimum scrubber water flow rate is continually maintained at 150 gallons per minute or the water flow rate during the most recent emission testing that demonstrated that the emissions unit was in compliance;
 - b. the pH of the scrubber liquor is continually maintained in the range established during the last emissions testing that demonstrated that the emissions unit was in compliance; and
 - c. the pressure drop across the scrubber is continually maintained within the range established during the most recent emissions testing that demonstrated that the emissions unit was in compliance.

The permittee may petition the Northeast District Office of the Ohio EPA for reestablishment of the pressure drop and pH ranges at any time, provided the permittee can demonstrate that the operating conditions upon which these ranges were previously established are no longer appropriate.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from at least 5 days per week to weekly readings if the following conditions are met:

- a. for 1 full quarter the facility's visual observations indicate no visible emissions; and
- b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to 5 days per week readings if any visible emissions are observed.

III. Monitoring and/or Record Keeping Requirements (continued)

2. The permittee shall properly operate and maintain equipment to continuously monitor and record the static pressure drop across the scrubber, the scrubber water flow rate, and the pH of the scrubber water, while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day the emissions unit is in operation:

- a. the pressure drop across the scrubber, in inches of water, on an hourly basis;
- b. the scrubber water flow rate, in gallons per minute, on an hourly basis;
- c. the pH of the scrubber liquor, on an hourly basis; and
- d. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

2. The permittee shall submit quarterly deviation (excursion) reports that identify all periods of time during which the following scrubber parameters were not maintained within the required levels:
 - a. the static pressure drop across the scrubber;
 - b. the scrubber water flow rate; and
 - c. the pH of the scrubber water.

V. Testing Requirements

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

1.a Emission Limitation

Total particulate emissions from P001 and P027 shall not exceed 0.030 grain/dscf, 3.84 pounds per hour and 16.82 tons per year. Particulate emissions shall include HCl and HF acid mist and sand.

Applicable Compliance Method

Compliance with the particulate emission limits above, shall be determined in accordance with OAC rule 3745-17-03 and Method 5 and Method 26A of 40 CFR Part 60, Appendix A.

Compliance with the annual particulate emissions rate shall be demonstrated by multiplying the hourly actual rate of emissions by 8760 hours per year, and dividing by 2000.

V. Testing Requirements (continued)

1.b Emission Limitation

no visible emissions

Applicable Compliance Method

Compliance with the visible emissions limitation above shall be demonstrated in accordance with 40 CFR Part 60, Appendix A, Method 22.

1.c 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 1 month after issuance of this permit and within 6 months of permit expiration.

ii. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions including emissions of acid mists, and the uncontrolled mass emission rate.

The following test methods shall be employed: Method 5 and Method 26 of 40 CFR, Part 60, Appendix A.

iv. The test(s) shall be conducted while the equipment are operating at or near their maximum capacities, unless otherwise specified or approved by the Northeast District Office of the Ohio EPA.

v. The permittee shall continuously measure and record the pressure drop across the scrubber, in inches of water, the scrubber water flow rate, and the scrubber water pH within the scrubber for this emissions unit during each test run.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Ohio EPA Northeast District Office and/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 Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: TUMBLER 6 (P029)
Activity Description: Tumbler to remove impurities in sand preparation

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
Tumblers 6 to remove sand impurities, equipped with a Heil packed bed scrubber (See A.1.2.a.)	OAC rule 3745-31-05(A)(3) PTI # 02-0059 PTI #02-8946 (modification of PTI #02-6199 with tumbler number 5 addition)	The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A) and 3745-17-11(B)(1). There shall be no visible particulate emissions from this emissions unit. Total particulate emissions from P001, P027 and P029, that is the six tumblers combined, shall not exceed 0.030 grains/dscf , 3.84 pounds per hour, and 16.82 tons per year. Particulate emissions shall include HCl and HF acid mist and sand. 99.3% particulate removal efficiency for the fume scrubber (See A.1.2.a.)
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-07(A)	The opacity limitation specified by this rule is less stringent than the opacity limitation established pursuant to OAC rule 3745-31-05(A)(3).

2. Additional Terms and Conditions

- 2.a P027 includes tumbler numbers 1-5 and P029 includes tumbler 6, all of which are vented to the Heil packed bed scrubber.
- 2.b This fume scrubber also serves the heat removal hoods and the HF acid wash tanks' hoods.

2. Additional Terms and Conditions (continued)

2.c All particulate emissions from this emissions unit shall be vented to the scrubber.

II. Operational Restrictions

1. The permittee shall operate the packed bed scrubber associated with this emissions unit at all times while the emissions unit is in operation such that:
 - a. the minimum scrubber water flow rate is continually maintained at 150 gallons per minute or the water flow rate during the most recent emission testing that demonstrated that the emissions unit was in compliance;
 - b. the pH of the scrubber water is continually maintained in the range established during the last emissions testing that demonstrated that the emissions unit was in compliance; and
 - c. the pressure drop across the scrubber is continually maintained within the range established during the most recent emissions testing that demonstrated that the emissions unit was in compliance.

The permittee may petition the Northeast District Office of the Ohio EPA for reestablishment of the pressure drop and pH ranges at any time, provided the permittee can demonstrate that the operating conditions upon which these ranges were previously established are no longer appropriate.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.

Notwithstanding the frequency of reporting requirements specified in section A.IV, the permittee may reduce the frequency of visual observations for this emissions from at least 5 days per week to weekly readings if the following conditions are met:

- a. for 1 full quarter the facility's visual observations indicate no visible emissions; and
- b. the permittee continues to comply with all the record keeping and monitoring requirements specified in section A.III.1.

The permittee shall revert to 5 days per week readings if any visible emissions are observed.

III. Monitoring and/or Record Keeping Requirements (continued)

2. The permittee shall properly operate and maintain equipment to continuously monitor and record the static pressure drop across the scrubber, the scrubber water flow rate, and the pH of the scrubber water, while the emissions unit is in operation. The monitoring devices and any recorders shall be calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals.

The permittee shall collect and record the following information each day the emissions unit is in operation:

- a. the pressure drop across the scrubber, in inches of water, on an hourly basis;
- b. the scrubber water flow rate, in gallons per minute, on an hourly basis;
- c. the pH of the scrubber liquor, on an hourly basis; and
- d. the operating times for the capture (collection) system, control device, monitoring equipment, and the associated emissions unit.

IV. Reporting Requirements

1. The permittee shall submit semiannual reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

2. The permittee shall submit quarterly deviation (excursion) reports that identify all periods of time during which the following scrubber parameters were not maintained within the required levels:
 - a. the static pressure drop across the scrubber;
 - b. the scrubber water flow rate; and
 - c. the pH of the scrubber water.

V. Testing Requirements

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

1.a Emission Limitation

Total particulate emissions from P001, P027 and P029 shall not exceed 0.030 grain/dscf, 3.84 pounds per hour and 16.82 tons per year. Particulate emissions shall include HCl and HF acid mist and sand.

Applicable Compliance Method

Compliance with the particulate emission limits above, shall be determined in accordance with OAC rule 3745-17-03 and Method 5 and Method 26A of 40 CFR Part 60, Appendix A.

Compliance with the annual particulate emissions rate shall be demonstrated by multiplying the hourly actual rate of emissions by 8760 hours per year, and dividing by 2000. Particulate emissions shall include HCl and HF acid mist and sand.

V. Testing Requirements (continued)

1.b Emission Limitation

no visible emissions

Applicable Compliance Method

Compliance with the visible emissions limitation above shall be demonstrated in accordance with 40 CFR Part 60, Appendix A, Method 22.

1.c 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 1 month after issuance of this permit and within 6 months of permit expiration.

ii. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions including emissions of acid mists, and the uncontrolled mass emission rate.

The following test methods shall be employed: Method 5 and Method 26 of 40 CFR, Part 60, Appendix A.

iv. The test(s) shall be conducted while the equipment is operating at or near its maximum capacities, unless otherwise specified or approved by the Northeast District Office of the Ohio EPA.

v. The permittee shall continuously measure and record the pressure drop across the scrubber, in inches of water, the scrubber water flow rate, and the scrubber water pH within the scrubber for this emissions unit during each test run.

Not later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Ohio EPA Northeast District Office. The "Intent to Test" notification shall describe in detail the proposed test methods and procedures, the emissions unit operating parameters, the time(s) and date(s) of the test(s), and the person(s) who will be conducting the test(s). Failure to submit such notification for review and approval prior to the test(s) may result in the Ohio EPA Northeast District Office's refusal to accept the results of the emissions test(s).

Personnel from the Ohio EPA Northeast District Office and/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 Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: CM7 (P031)

Activity Description: Crucible Machine # 7

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
Electric Crucible machine # 7, equipped with a Torit primary baghouse, and sand feed systems, equipped with a Fabrimax-Filter primary baghouse, a Spencer-Filter secondary baghouse, and a mist eliminator, also including the auxilliary blockhouse vent and vacuum pumps (P031)	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	Nitrogen oxides (NOx) emissions from this emissions unit shall not exceed 19.48 pounds per hour and 15.9 tons per rolling, 12-month period. See A.I.2.f. and A.I.2.g. The total particulate emissions from this emissions unit alone, that are released through stacks serving or associated with this emissions unit, shall not exceed 7.1 tons per year. Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10 percent opacity, as a 3-minute average. Reasonably available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust shall be employed for this emissions unit. (See A.I.2.b.) The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A), 3745-17-11(B), 3745-21-08, and 3745-23-06(B).

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-17-07(A)	Visible particulate emissions from the stacks serving this emissions unit, including the outlets from the three baghouses, shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-08(B)	See A.I.2.d.
	OAC rule 3745-17-11(B)(1)	The total particulate emissions from this emissions unit, from all the stacks serving or associated with this emissions unit, shall not exceed 1.62 pounds per hour based on Table I of OAC rule 3745-17-11(with a maximum process weight rate of 500 pounds per hour). See Section A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b
	OAC rule 3745-23-06(B)	See A.I.2.c.

2. Additional Terms and Conditions

- 2.a** This emissions unit includes crucible machine number 6 only and associated control and process equipment.
- 2.b** The permittee shall minimize or eliminate visible emissions of fugitive dust through the employment of reasonably available control measures (RACM). These measures shall include, but not be limited to, the following:
 - i. the use of adequate hooding or equivalent capture devices for the crucible filling, arc fusion, and crucible cooling operations, for the sand storage and transfer equipment, and for the equipment used to mechanically finish quartz crucibles and tubing including, but not limited to saws, sanders, bevelers, trimmers and grinders; and
 - ii. all fugitive dust captured shall be vented to the baghouses.

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

2. Additional Terms and Conditions (continued)

2.c The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

2.e All NOx emissions shall be vented to stacks.

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

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

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

The following are the current NOx emission factors provided on page 63 of 59 of the addendum to the PTI application #02-13174 received at Ohio EPA on February 5, 2002:

12 inch crucibles(510/520)	0.63	pound/crucible
12 inch crucibles(530)	0.99	pound/crucible
14 inch crucibles(510/520)	1.65	pounds/crucible
14 inch crucibles(530)	2.19	pounds/crucible
16 inch crucibles(510/520)	2.57	pounds/crucible
16 inch crucibles(530)	2.12	pounds/crucible
18 inch crucibles	2.85	pounds/crucible

To ensure enforceability of this provision during the first twelve (12) months of operation following the final issuance of PTI 02-13174, the permittee shall not exceed the following cumulative NOx emission limitations:

2. Additional Terms and Conditions (continued)

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

2.g After the first twelve calendar months of operation, after the final issuance of PTI 02-13174, compliance the NOx combined emissions limitation of 31.8 tons per year, shall be based upon rolling, twelve-month summations of the NOx emission rates.

II. Operational Restrictions

1. The pressure drop, in inches of water column, for each of the baghouses (Torit, Torit Fibrimax, and the Spencer) and the mist eliminator, while the emissions unit is in operation, shall be maintained within the range that was established during the most recent emission test that demonstrated the emissions unit was in compliance.

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

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when any of the equipment comprising this emissions unit is in operation and when the weather conditions allow, for any visible fugitive particulate emissions from the building egress points (i.e., building windows, doors, roof monitors, etc) serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operation log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the location(s) and color(s) of the emissions;
 - b. whether the emissions are representative of normal conditions;
 - c. if the emissions are not representative of normal operations, the cause(s) of the abnormal emissions;
 - d. the total duration of any visible emission incident; and
 - e. any corrective actions taken to minimize or eliminate the visible emissions.

If visible emissions are present, a visible emission incident has occurred. The observer does not have to document the exact start and end times for the visible emission incident under item (d) above or continue the daily check until the incident has ended. The observer may indicate that the visible emission incident was continuous during the observation period (or, if known, continuous during the operation of the emissions unit). With respect to the documentation of corrective actions, the observer may indicate that no corrective actions were taken if the visible emissions were representative of normal operations, or specify the minor corrective actions that were taken to ensure that the emissions unit continued to operate under normal conditions, or specify the corrective actions that were taken to eliminate abnormal visible emissions.

2. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
3. The permittee shall properly operate and maintain equipment to monitor the pressure drop across each baghouse and mist eliminator while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across each baghouse and the mist eliminator on a daily basis.

III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the number of crucibles of each size produced;
 - b. the NO_x emission factor for each size of crucible produced;
 - c. the total NO_x emissions from all crucibles produced, in pounds and tons;
 - d. the rolling 12- month summation of the NO_x emissions, in tons;
 - e. beginning after the first 12 calendar months of operation following the final issuance of PTI #02-13174, the rolling, 12-month summation of the NO_x emissions, in tons;
 - f. beginning after the first 12 calendar months of operation following the final issuance of PTI #02-13174, the rolling, 12-month summation of the NO_x emissions for emissions units P026 and P031, combined, in tons;
 - g. the hours of operation; and
 - h. the average hourly NO_x emission rate, in pounds per hour.

Also, during each of the first 12 calendar months of operation after the final issuance of PTI #02-13174, the permittee shall calculate and record the cumulative NO_x emissions for emissions units P026 and P031, combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible fugitive particulate emissions were observed from the egress points (i.e., building windows, doors, roof monitors, etc.) serving this emissions unit; and
 - b. describe any corrective actions taken to minimize or eliminate the visible fugitive particulate emissions.

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

2. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

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

IV. Reporting Requirements (continued)

4. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month NOx emission limitation for this emissions unit;
 - b. for the first 12 calendar months of operation following the final issuance of PTI #02-13174, the allowable, monthly, cumulative NOx emission limitation for emissions units P026 and P031, combined;
 - d. after the first 12 calendar months of operation following the final issuance of PTI 02-13174, the rolling, 12-month NOx emission limitation for P026 and P031, combined; and
 - e. the hourly NOx emission limitation.
5. The permittee shall submit annual reports that summarize the the total annual emissions of NOx from this emissions unit.

These reports shall be submitted to the Northeast District Office of the Ohio EPA by January 31 of each year and shall cover the previous 12-month period.

V. Testing Requirements

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

- 1.a Emission Limitation

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

Applicable Compliance Method

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

- 1.b Emission Limitation

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

Applicable Compliance Method

Compliance with the above visible emission limitation shall be determined using Method 9 of 40 CFR, Part 60, Appendix A.

V. Testing Requirements (continued)

1.c Emission Limitation

1.62 pounds per hour of particulate emissions, based on Table I of OAC rule 3745-17-11 and a maximum process weight (PWR) of 500 pounds per hour, and 7.1 tons per year particulate emissions;

Applicable Compliance Method

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

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

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

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

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

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

1.d Emission Limitation

- i. The allowable hourly NO_x emission rate of 19.48 pounds per hour.
- ii. The allowable rolling, 12-month NO_x emission rate of 15.9 ton.

Applicable Compliance Method

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

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

The permittee shall calculate the rolling, 12-month NO_x emissions and demonstrate compliance with the NO_x emission limitation by multiplying the emission factor for crucible production [from the most recent witnessed stack test (in lbs NO_x/crucible)] by the rolling total number of crucibles produced during the 12-month period (from the record keeping in A.III.4), and dividing by 2000 lbs/ton.

1.e Emission Limitation

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

Applicable Compliance Method

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

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

V. Testing Requirements (continued)

2.a Emission Testing Requirements

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

- i. The emission testing shall be conducted within 3 months after the issuance of this permit and shall be conducted again within 6 months prior to permit expiration.
- ii. The emission testing shall be conducted for each uncontrolled stack and each baghouse inlet and outlet and shall be conducted to demonstrate compliance with the allowable hourly mass emission rate for particulate emissions, the allowable hourly mass emission rate for NO_x emissions, and to determine the NO_x emission factors for crucible production. For the purposes of emission testing, the auxiliary blockhouse vent and vacuum pumps emissions shall be included in the compliance determination.
- iii. The following test method(s) and procedures shall be employed to determine compliance with the allowable mass emission rates for particulate emissions and NO_x and to determine emission factors for NO_x:

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

iv. The test shall be conducted while the emissions unit is operating at or near its maximum capacity, with respect to arc strength in kw-hr and the surface area of the crucibles, unless otherwise specified or approved by the Northeast District Office of the Ohio EPA. In addition, during each test run, pressure drop across each of the baghouses shall be recorded every 5 minutes so that an allowable pressure drop or pressure drop range may be established.

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

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

- 2.c** Personnel from the Northeast District Office of the Ohio EPA and local air agency shall be permitted to witness the test(s), examine the testing equipment, and acquire data and information necessary to ensure that the operation of the emissions unit and the testing procedures provide a valid characterization of the emissions from the emissions unit and/or the performance of the control equipment.
- 2.d** A comprehensive written report on the results of the emissions test(s) shall be signed by the person or persons responsible for the tests and submitted to the Northeast District Office of the Ohio EPA within 30 days following completion of the test(s). The permittee may request additional time for the submittal of the written report, where warranted, with prior approval from the Northeast District Office of the Ohio EPA.

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #17 (P032)
Activity Description: LD Lathe Number 17

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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 number 17 (natural gas fired) 1.26 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).
	OAC rule 3745-17-07(A)	0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

 The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

- 2.c** All NOx emissions shall be vented to the stacks.

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

II. Operational Restrictions

- 1.** The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.

- 2.** The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas- fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
	.	
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NO_x emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NO_x emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NO_x emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NO_x emission limitation for this emissions unit.

V. Testing Requirements

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

V. Testing Requirements (continued)

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

V. Testing Requirements (continued)

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

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

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

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

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

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

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

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #18 (P033)
Activity Description: LD Lathe Number 18

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P033 - Large diameter lathe number 18 (natural gas fired) 1.26 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NO_x emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas- fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NO_x emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NO_x emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NO_x for this emissions unit in accordance with the following:
 - a. The emission testing for NO_x and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NO_x shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NO_x.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NO_x respectively:

Method 5 "Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #18 (P033)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #19 (P034)
Activity Description: LD Lathe Number 19

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P034 - Large diameter lathe number 19 (natural gas fired) 1.26 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).
	OAC rule 3745-17-07(A)	0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NOx emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas- fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
	.	
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NO_x emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NO_x emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NO_x emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NO_x emission limitation for this emissions unit.

V. Testing Requirements

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

V. Testing Requirements (continued)

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

V. Testing Requirements (continued)

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

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

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

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

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

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

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

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #20 (P035)
Activity Description: LD Lathe Number 20

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P035 - Large diameter lathe number 20 (natural gas fired) 1.26 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NO_x emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas-fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 "Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #20 (P035)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #21 (P036)

Activity Description: LD Lathe Number 21

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P036 - Large diameter lathe number 21 (natural gas fired) 1.26 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NO_x emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas-fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

- 1.a Emission Limitation

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

Applicable Compliance Method

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

- 1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 "Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #21 (P036)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #22 (P037)
Activity Description: LD Lathe Number 22

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P037 - Large diameter lathe number 22 (natural gas fired) 2.21 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NOx emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas- fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

- 1.a Emission Limitation

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

Applicable Compliance Method

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

- 1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 "Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #22 (P037)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #23 (P038)
Activity Description: LD Lathe Number 23

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P038 - Large diameter lathe number 23 (natural gas fired) 2.21 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).
	OAC rule 3745-17-07(A)	0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

- 2.b** The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

 The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

- 2.c** All NOx emissions shall be vented to the stacks.

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

II. Operational Restrictions

- 1.** The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.

- 2.** The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas- fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
	.	
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.
3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

III. Monitoring and/or Record Keeping Requirements (continued)

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

V. Testing Requirements (continued)

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

V. Testing Requirements (continued)

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

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

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

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

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

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

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

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #24 (P039)
Activity Description: LD Lathe Number 24

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P039 - Large diameter lathe number 24 (natural gas fired) 2.21 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NO_x emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas-fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 "Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #24 (P039)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #25 (P040)
Activity Description: LD Lathe Number 25

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P040 - Large diameter lathe number 25 (natural gas fired) 2.21 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NO_x emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas-fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 "Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #25 (P040)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #26 (P041)
Activity Description: LD Lathe Number 26

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P041 - Large diameter lathe number 26 (natural gas fired) 2.21 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.a.
	OAC rule 3745-21-08	See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NO_x emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas-fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NOx emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NOx emission limitation for this emissions unit.

V. Testing Requirements

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

- 1.a Emission Limitation

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

Applicable Compliance Method

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

- 1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 " Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #26 (P041)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: LD Lathe #27 (P042)
Activity Description: LD Lathe Number 27

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P042 - Large diameter lathe number 27 (natural gas fired) 2.21 MMBTU/hr; H2 pilot	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 15.23 pounds per hour from this emissions unit and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B).
		0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined
	OAC rule 3745-17-07(A)	Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E) OAC rule 3745-21-08	See A.I.2.a. See A.I.2.b.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-23-06(B)	See A.I.2.b.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NO_x emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas in this emissions unit, except for the pilot light which shall burn only hydrogen as fuel.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas- fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
 - a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
 - a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

IV. Reporting Requirements (continued)

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NO_x emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NO_x emission limitation for this emissions unit.

V. Testing Requirements

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

1.a Emission Limitation

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

Applicable Compliance Method

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

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

V. Testing Requirements (continued)

1.c Emission Limitation

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

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

Method 5 "Determination of Particulate Emissions from Stationary Sources" and Method 7 "Determination of Nitrogen Oxide Emissions from Stationary Sources and the requirements of OAC rule 3745-31-05.
 - d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified by the Northeast District of the Ohio EPA.

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

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

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

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

Facility Name: **GE Quartz, Inc. - Willoughby Quartz Plant**
Facility ID: **02-43-16-0086**
Emissions Unit: **LD Lathe #27 (P042)**

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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 - Terms and Conditions for Emissions Units

Emissions Unit ID: Repair Lathe & Bench Repair Lathe (P043)

Activity Description: Repair Lathes and Bench Repair Lathes

A. State and Federally Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

- The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may be specified in narrative form following the table.

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
P043-Four(4) repair lathes: (large and small Heathway, 0.78 and 0.58 MMBTU/hr and large and small Litton. 0.78 and 0.48 MMBTU/hr); and two (2) bench repair lathes (0.02 MMBTU/hr each);and the hydrogen fired Crucible repair lathes (0.78MMBTU/hr)	OAC rule 3745-31-05(A)(3) and (D) PTI #02-13174 (synthetic minor)	NOx emissions shall not exceed 10.82 pounds per hour and 0.33 lb/hr from all repair lathes combined and both bench repair lathes, respectively; and 194.1 TPY based on rolling 12-month summations for all production, repair and bench lathes, immersion equipment and glazers, combined.. The requirements of this rule also include compliance with the requirements of, OAC rules 3745-17-07(A), 3745-17-11(B), 3745-18-06, 3745-21-08, and 3745-23-06(B). 0.25 pound per hour, 6 pounds per day and 1.09 tons per year particulate emissions from all stack emission points combined Visible particulate emissions of fugitive dust from this emissions unit shall not exceed 10(ten) percent opacity, as a 3-minute average. Visible particulate emissions from any stack associated with this emissions unit shall not exceed twenty percent opacity, as a six-minute average, except as provided by rule.
	OAC rule 3745-17-07(A)	

<u>Operations, Property, and/or Equipment</u>	<u>Applicable Rules/ Requirements</u>	<u>Applicable Emissions Limitations/Control Measures</u>
	OAC rule 3745-17-07(B)	The opacity limitation specified by this rule is less stringent than the opacity limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-17-11(B)(1)	The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
	OAC rule 3745-18-06(E)	See A.I.2.b.
	OAC rule 3745-21-08	See A.I.2.c.
	OAC rule 3745-23-06(B)	See A.I.2.c.

2. Additional Terms and Conditions

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

2.b The permittee has satisfied the "best available control techniques and operating practices" required pursuant to OAC rule 3745-21-08(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

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

The permittee has satisfied the "latest available control techniques and operating practices" required pursuant to OAC rule 3745-23-06(B) by committing to comply with the best available technology requirements established pursuant to OAC rule 3745-31-05(A)(3) in Permit to Install 02-13174.

2.c All NOx emissions shall be vented to the stacks.

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

II. Operational Restrictions

1. The permittee shall burn only natural gas or hydrogen in this emissions unit.
2. The maximum annual fuel usage for this emissions unit and all the production lathes (LD lathes 16-27), the 4 repair and 2 bench lathes, the two glazers and the immersion machine (natural gas-fired units), combined, shall not exceed 30.29 million standard cubic feet of natural gas and 1.29 million standard cubic feet of hydrogen, based on rolling, 12-month summations.

To ensure enforceability during the first twelve (12) months of operation following the final issuance of PTI #02-13174, the permittee shall not exceed the following natural gas and hydrogen usage levels for all the combined equipment described above:

II. Operational Restrictions (continued)

MONTH(S) FOLLOWING PTI ISSUANCE	MAXIMUM ALLOWABLE CUMULATIVE FUEL USAGE (MMSCF)	
	(natural gas)	(hydrogen)
.		
1-1	3	0.1
1-2	6	0.2
1-3	9	0.3
1-4	12	0.4
1-5	15	0.5
1-6	18	0.6
1-7	21	0.7
1-8	24	0.8
1-9	27	0.9
1-10	29	1.0
1-11	30	1.1
1-12	30.29	1.29

After the first 12 calendar months of operation following the final issuance of PTI #02-13174, the permittee shall comply with the annual natural gas and hydrogen fuel usage limitations based on rolling, 12-month summations.

III. Monitoring and/or Record Keeping Requirements

1. The permittee shall perform daily checks, when the emissions unit is in operation and when the weather conditions allow, for any visible particulate emissions from the stacks serving this emissions unit. The presence or absence of any visible emissions shall be noted in an operations log. If visible emissions are observed, the permittee shall also note the following in the operations log:
 - a. the color of the emissions;
 - b. the total duration of any visible emission incident; and
 - c. any corrective actions taken to eliminate the visible emissions.
2. For each day during which the permittee burns a fuel other than natural gas or hydrogen, the permittee shall maintain a record of the type and quantity of fuel burned in this emissions unit.

III. Monitoring and/or Record Keeping Requirements (continued)

3. The permittee shall maintain monthly records of the following information for this emissions unit:
- a. the natural gas usage (in MMscf);
 - b. the rolling, 12-month natural gas usage (in MMscf);
 - c. the hydrogen usage (in MMscf);
 - d. the rolling, 12-month hydrogen usage (in MMscf);
 - e. the total NOx emissions resulting from hydrogen usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - f. the total NOx emissions resulting from natural gas usage, calculated in accordance with the calculations attached to PTI 02-13174 (in pounds);
 - g. the total amount of NOx emitted from this emissions unit, in pounds and in tons;
 - h. the total hours of operation; and
 - i. the average hourly NOx emission rate (in pounds per hour).

Also, during the first 12 calendar months of operation, after the final issuance of PTI 02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage for this emissions unit for each calendar month.

4. The permittee shall maintain monthly records of the following information for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined:
- a. the total natural gas usage (in MMscf);
 - b. the total hydrogen usage (in MMscf);
 - c. the total NOx emissions resulting from hydrogen and natural gas usage;
 - d. the rolling, 12-month natural gas usage;
 - e. the rolling, 12-month hydrogen usage; and
 - f. the rolling, 12-month NOx emissions.

Also, during the first 12 calendar months of operation, after the final issuance of PTI #02-13174, the permittee shall record the cumulative natural gas and hydrogen fuel usage, for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined.

IV. Reporting Requirements

1. The permittee shall submit semiannual written reports that:
 - a. identify all days during which any visible particulate emissions were observed from the stacks serving this emissions unit; and
 - b. describe any corrective actions taken to eliminate the visible particulate emissions.

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

2. The permittee shall submit deviation (excursion) reports that identify each day when a fuel other than natural gas and hydrogen was burned in this emissions unit. Each report shall be submitted within 30 days after the deviation occurs.
3. The permittee shall submit quarterly deviation (excursion) reports that identify all exceedances of the following:
 - a. the rolling, 12-month limitations for hydrogen and natural gas fuel usage and NO_x emissions for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined;
 - b. for the first 12 calendar months of operation following the final issuance of this PTI, the monthly allowable cumulative fuel usages for hydrogen and natural gas for all production, repair and bench lathes, immersion equipment and glazers (P025 and P032-P043), combined; and
 - c. the allowable hourly NO_x emission limitation for this emissions unit.

V. Testing Requirements

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

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

Applicable Compliance Method

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

V. Testing Requirements (continued)

1.b Emission Limitation

0.25 pound per hour and 6 pounds per day of particulate emissions

Applicable Compliance Method

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

Because the daily particulate limit was established by multiplying the short-term limit of 0.25 lbs/hour by 24 hours of operation per day, and the annual particulate limit was established by multiplying the short-term limit by 8,760 hours of operation per year, compliance with the daily and annual limits is assumed provided that compliance with the short-term hourly limit is maintained.

1.c NOx emissions shall not exceed 10.82 pounds per hour and 0.33 pound per hour from all repair lathes combined and both bench repair lathes, respectively, from this emissions unit, and 194.1 TPY, based on rolling 12-month summations from all production, repair and bench lathes, immersion equipment and glazers, combined.

Applicable Compliance Method

Compliance with the hourly NOx emission limitation above, shall be determined by using Method 7 of 40 CFR Part 60, Appendix A and and the record keeping in Section A.III.4. of these terms and conditions.

Compliance with monthly and the rolling, 12-month NOx emission limitations shall be based on the approved calculations attached to PTI #02-13174 and the record keeping in Section A.III.4. of these terms and conditions.

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

V. Testing Requirements (continued)

2. The permittee shall conduct, or have conducted, emission testing of the mass emission rates for particulate emissions and NOx for this emissions unit in accordance with the following:
 - a. The emission testing for NOx and particulate emissions shall be conducted within 6 months after issuance of this permit. Thereafter, emission testing for NOx shall be conducted annually.
 - b. The emission testing shall be conducted to determine compliance with the allowable emission rates for particulate emissions and NOx.
 - c. The following test methods from 40 CFR Part 60, Appendix A, shall be employed to determine compliance with the allowable emission rates for particulate and NOx respectively:

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

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

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

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

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

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

VI. Miscellaneous Requirements

None

B. State Enforceable Section

I. Applicable Emissions Limitations and/or Control Requirements

1. The specific operation(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 employed. Additional applicable emissions limitations and/or control measures (if any) may 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>
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2. Additional Terms and Conditions

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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