



John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Scott J. Nally, Director

7/29/2013

Certified Mail

Sarah Harrison  
Johns Manville / Plant #01 - wtv1  
6050 N. River Rd.  
Waterville, OH 43566

RE: FINALAIR POLLUTION PERMIT-TO-INSTALL  
Facility ID: 0448000012  
Permit Number: P0115109  
Permit Type: Administrative Modification  
County: Lucas

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
No	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
No	MODELING SUBMITTED
No	MAJOR GHG
No	SYNTHETIC MINOR TO AVOID MAJOR GHG

Dear Permit Holder:

Enclosed please find a final Ohio Environmental Protection Agency (EPA) Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. Because this permit contains conditions and restrictions, please read it very carefully. In this letter you will find the information on the following topics:

- **How to appeal this permit**
- **How to save money, reduce pollution and reduce energy consumption**
- **How to give us feedback on your permitting experience**
- **How to get an electronic copy of your permit**

**How to appeal this permit**

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
77 South High Street, 17th Floor  
Columbus, OH 43215

## **How to save money, reduce pollution and reduce energy consumption**

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. Additionally, all or a portion of the capital expenditures related to installing air pollution control equipment under this permit may be eligible for financing and State tax exemptions through the Ohio Air Quality Development Authority (OAQDA) under Ohio Revised Code Section 3706. For more information, see the OAQDA website: [www.ohioairquality.org/clean\\_air](http://www.ohioairquality.org/clean_air)

## **How to give us feedback on your permitting experience**

Please complete a survey at [www.epa.ohio.gov/dapc/pemitsurvey.aspx](http://www.epa.ohio.gov/dapc/pemitsurvey.aspx) and give us feedback on your permitting experience. We value your opinion.

## **How to get an electronic copy of your permit**

This permit can be accessed electronically via the eBusiness Center: Air Services in Microsoft Word format or in Adobe PDF on the Division of Air Pollution Control (DAPC) Web page, [www.epa.ohio.gov/dapc](http://www.epa.ohio.gov/dapc) by clicking the "Search for Permits" link under the Permitting topic on the Programs tab.

If you have any questions, please contact Toledo Department of Environmental Services at (419)936-3015 or the Office of Compliance Assistance and Pollution Prevention at (614) 644-3469.

Sincerely,

*Michael W. Ahern*

Michael W. Ahern, Manager

Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA  
TDES; Michigan; Indiana; Canada



**FINAL**

**Division of Air Pollution Control  
Permit-to-Install  
for  
Johns Manville / Plant #01 - wtv1**

Facility ID:	0448000012
Permit Number:	P0115109
Permit Type:	Administrative Modification
Issued:	7/29/2013
Effective:	7/29/2013





**Division of Air Pollution Control**  
**Permit-to-Install**  
for  
Johns Manville / Plant #01 - wtv1

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**Final Permit-to-Install**  
Johns Manville / Plant #01 - wtv1  
**Permit Number:** P0115109  
**Facility ID:** 0448000012  
**Effective Date:** 7/29/2013

## Authorization

Facility ID: 0448000012  
Facility Description: Fiber Glass Manufacturer  
Application Number(s): M0002280  
Permit Number: P0115109  
Permit Description: Agency-initiated administrative modification to remove SIP requirements that are no longer applicable.  
Permit Type: Administrative Modification  
Permit Fee: \$0.00  
Issue Date: 7/29/2013  
Effective Date: 7/29/2013

This document constitutes issuance to:

Johns Manville / Plant #01 - wtv1  
6050 River Road  
Waterville, OH 43566

of a Permit-to-Install for the emissions unit(s) identified on the following page.

Ohio Environmental Protection Agency (EPA) District Office or local air agency responsible for processing and administering your permit:

Toledo Department of Environmental Services  
348 South Erie Street  
Toledo, OH 43604  
(419)936-3015

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

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency

A handwritten signature in black ink, appearing to read "Scott J. Nally".

Scott J. Nally  
Director



**Final Permit-to-Install**  
Johns Manville / Plant #01 - wtv1  
**Permit Number:** P0115109  
**Facility ID:** 0448000012  
**Effective Date:** 7/29/2013

## Authorization (continued)

Permit Number: P0115109  
Permit Description: Agency-initiated administrative modification to remove SIP requirements that are no longer applicable.

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

<b>Emissions Unit ID:</b>	<b>P001</b>
Company Equipment ID:	Furnace 9211
Superseded Permit Number:	04-01345
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P013</b>
Company Equipment ID:	Furnace 9212
Superseded Permit Number:	04-01345
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>P017</b>
Company Equipment ID:	Reclaim & Hammermill
Superseded Permit Number:	04-01345
General Permit Category and Type:	Not Applicable



**Final Permit-to-Install**  
Johns Manville / Plant #01 - wtv1  
**Permit Number:** P0115109  
**Facility ID:** 0448000012  
**Effective Date:** 7/29/2013

## **A. Standard Terms and Conditions**



## **1. Federally Enforceable Standard Terms and Conditions**

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
  - (1) Standard Term and Condition A.2.a), Severability Clause
  - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
  - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
  - (4) Standard Term and Condition A.9., Reporting Requirements
  - (5) Standard Term and Condition A.10., Applicability
  - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
  - (7) Standard Term and Condition A.14., Public Disclosure
  - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
  - (9) Standard Term and Condition A.16., Fees
  - (10) Standard Term and Condition A.17., Permit Transfers

## **2. Severability Clause**

- a) 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.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they 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 and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

## **3. 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 re-issuance, or modification.



- 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, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d) This permit does not convey any property rights of any sort, or any exclusive privilege.
- e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying 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.

#### **4. 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:
  - (1) The date, place (as defined in the permit), and time of sampling or measurements.
  - (2) The date(s) analyses were performed.
  - (3) The company or entity that performed the analyses.
  - (4) The analytical techniques or methods used.
  - (5) The results of such analyses.
  - (6) The operating conditions existing at the time of sampling or measurement.
- b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
  - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Toledo Department of Environmental Services.



- (2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations, excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Toledo Department of Environmental Services. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.
  - (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted (i.e., postmarked) to the Toledo Department of Environmental Services every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
  - (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

## **5. Scheduled Maintenance/Malfunction Reporting**

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Toledo Department of Environmental Services in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

## **6. Compliance Requirements**

- a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.
- b) Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.



- c) 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:
  - (1) 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.
  - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
  - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - (4) 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.
- d) The permittee shall submit progress reports to the Toledo Department of Environmental Services 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:
  - (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - (2) 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.

## **7. Best Available Technology**

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

## **8. 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.

## **9. Reporting Requirements**

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Toledo Department of Environmental Services.
- b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission



limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Toledo Department of Environmental Services. 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 (i.e., postmarked) quarterly, 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.)

## **10. Applicability**

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

## **11. Construction of New Sources(s) and Authorization to Install**

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.
- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in Ohio EPA's "Air Services" along with the date the emissions unit(s) was permanently



removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).

- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

## **12. Permit-To-Operate Application**

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

## **13. Construction Compliance Certification**

The applicant shall identify the following dates in the online facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

## **14. Public Disclosure**

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



**15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations**

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., postmarked), by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.

**16. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

**17. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in Air Services once the transfer is legally completed. The change must be submitted through Air Services within thirty days of the ownership transfer date.

**18. Risk Management Plans**

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

**19. 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.



**Final Permit-to-Install**  
Johns Manville / Plant #01 - wtv1  
**Permit Number:** P0115109  
**Facility ID:** 0448000012  
**Effective Date:** 7/29/2013

## **B. Facility-Wide Terms and Conditions**



1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
  - a) The permittee shall provide an annual report of all Air Toxics used at the facility. The report shall include a table that shows usage by emission unit. The report shall list each Air Toxic and the amount used in tons. This report may be submitted electronically with prior approval of the Toledo Division of Environmental Services. This report shall be submitted by January 31 and shall include the usages for the previous calendar year. For the purpose of this report, an Air Toxic is defined as any substance that has been assigned a Threshold Limit Value (TLV) as established by the American Conference of Governmental Industrial Hygienists (ACGIH).
2. The permittee shall provide an annual report of all HAPs used at the facility. The report shall include a table that shows usage by emissions unit. The report shall list each HAP and the amount used in tons. This report may be submitted electronically with prior approval of the Toledo Division of Environmental Services. This report shall be submitted by January 31 and shall include the usages for the previous calendar year.



**Final Permit-to-Install**  
Johns Manville / Plant #01 - wtv1  
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## **C. Emissions Unit Terms and Conditions**



**1. P001, Furnace 9211**

**Operations, Property and/or Equipment Description:**

9211 Glass melting furnace (with electric boost), forehearth, and forming room

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	9211 Glass melting furnace (with electric boost)	
a.	OAC rule 3745-31-05(A)(3)	1.87 pounds of particulate emissions as PM <sub>10</sub> per ton of glass pull 66 tons PM <sub>10</sub> per rolling, 12-month period 17.34 tons of filterable particulate emissions (PE) per year 0.01 pound of carbon monoxide (CO) per ton of glass pull 0.35 ton CO per rolling, 12-month period 1.71 pounds of nitrogen oxides (NO <sub>x</sub> ) per ton of glass pull 60 tons NO <sub>x</sub> per rolling, 12-month period 2.02 pounds of sulfur dioxide (SO <sub>2</sub> ) per ton of glass pull 71 tons SO <sub>2</sub> per rolling, 12-month period 0.04 pound of volatile organic compounds (VOC) per ton of glass pull 1.4 tons VOC per rolling, 12-month period 0.36 pound of fluorides (F-) per ton of glass pull 13 tons F- per rolling, 12-month period See b)(2)a. and b)(2)o.
b.	OAC rule 3745-31-10 through 20	See b)(2)b.
c.	OAC rule 3745-31-05(D)	See b)(2)c. and b)(2)d.
d.	OAC rule 3745-17-07(A)(1)	See b)(2)e.
e.	OAC rule 3745-17-11(B)(1)	Requirements for 40 CFR Part 60, Subpart CC are more stringent than this rule.



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
f.	OAC rule 3745-18-06(E)(2)	See b)(2)e.
g.	40 CFR Part 60, Subpart CC	0.50 pound of filterable particulate emissions (PE) per ton of glass pull
Fiberglass forehearth area with natural gas over firing and no controls		
h.	OAC rule 3745-31-05(A)(3)	0.011 pound of particulate emissions as PM <sub>10</sub> per ton of glass pull
		0.39 ton PM <sub>10</sub> per rolling, 12-month period
		0.20 pound of filterable particulate emissions (PE) per hour
		0.88 ton PE per year
		1.8 pounds of carbon monoxide (CO) per hour
		7.9 tons CO per rolling, 12-month period
		2.1 pounds of nitrogen oxides (NO <sub>x</sub> ) per hour
		9.2 tons NO <sub>x</sub> per rolling, 12-month period
		0.02 pound of sulfur dioxide (SO <sub>2</sub> ) per hour
		0.09 ton SO <sub>2</sub> per rolling, 12-month period
		0.12 pound of volatile organic compounds (VOC) per hour
		0.53 ton VOC per rolling, 12-month period
		0.038 pound of fluorides (F-) per ton of glass pull
		1.32 tons F- per rolling, 12-month period
	See b)(2)f.	
i.	OAC rule 3745-31-10 through 20	See b)(2)h.
j.	OAC rule 3745-31-05(D)	See b)(2)i. and b)(2)j.
k.	OAC rule 3745-17-07(B)(1)	Visible emissions of fugitive dust shall not exceed twenty percent opacity as a three-minute average.
l.	OAC rule 3745-17-08(B)	See b)(2)g.
m.	OAC rule 3745-18-06(A)	See b)(2)k.
Fiberglass forming area with roll-on binder application and no controls		
n.	OAC rule 3745-31-05(A)(3)	0.20 pound of particulate emissions as PM <sub>10</sub> per ton of glass pull
		7.0 tons PM <sub>10</sub> per rolling, 12-month period
		0.50 pound of filterable particulate emissions (PE) per hour
		2.2 tons PE per year
		0.09 pound of volatile organic compounds (VOC) per ton of glass pull
		3.2 ton VOC per rolling, 12-month period
		0.021 pound of fluorides (F-) per ton of glass pull



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		0.73 ton F- per rolling, 12-month period
		See b)(2)f.
o.	OAC rule 3745-31-10 through 20	See b)(2)l.
p.	OAC rule 3745-31-05(D)	See b)(2)m. and b)(2)n.
q.	OAC rule 3745-17-07(A)(1)	See b)(2)o.
r.	OAC rule 3745-17-08(B)	See b)(2)g.
s.	OAC rule 3745-17-11(B)(1)	See b)(2)e.

(2) Additional Terms and Conditions

- a. The requirements of this rule include compliance with the requirements of OAC rules 3745-17-07(A)(1), 3745-31-10 through 20, and 40 CFR Part 60, Subpart CC.
- b. The combined emissions from P001 and P013, measures at the glass melting furnace baghouse exhaust, shall not exceed 133.10 tons of PM<sub>10</sub> and 25.62 tons of fluorides per rolling, 12-month period.
- c. The combined emissions from P001 and P013, measured at the glass melting furnace baghouse exhaust, shall not exceed 121.71 tons of NO<sub>x</sub>, 142.77 tons of SO<sub>2</sub>, and 2.85 tons of VOC per rolling, 12-month period.
- d. The combined emissions from P001 and P013, measured at the glass melting furnace baghouse exhaust, shall not exceed 0.71 ton of CO per rolling, 12-month period.
- e. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- f. The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-10 through 20, and OAC rule 3745-31-05(D).
- g. The permittee shall install best available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust. The collection efficiency shall be sufficient to minimize or eliminate visible particulate emissions of fugitive dust at the point(s) of capture to the extent possible with good engineering design.
- h. The combined emissions from P001 and P013, measured as a summation of the emissions for all vents serving both forehearth areas, shall not exceed 0.78 ton of PM<sub>10</sub> and 2.70 tons of fluorides per rolling, 12-month period.
- i. The combined emissions from P001 and P013, measured as a summation of the emissions for all vents serving both forehearth areas, shall not exceed 15.91 tons of NO<sub>x</sub>, 0.78 ton of PM<sub>10</sub>, 0.10 ton of SO<sub>2</sub>, and 0.87 ton of VOC per rolling, 12-month period.



- j. The combined emissions from P001 and P013, measured as a summation of the emissions from all vents serving both forehearth areas, shall not exceed 13.36 tons of CO per rolling, 12-month period.
  - k. OAC rule 3745-18-06(A) 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 a fuel. However, OAC rule 3745-18-06(A) requires that the natural gas being combusted meet certain fuel quality restrictions (a heat content greater than 950 Btu per standard cubic foot and a sulfur content less than 0.6 pound per million standard cubic feet). Because the natural gas being burned in this emissions unit is the standard, pipeline quality natural gas supplied to industrial, commercial, and residential users throughout the State, it is assumed that it meets the fuel quality restrictions; and no monitoring, record keeping or reporting requirements are necessary to ensure ongoing compliance with OAC rule 3745-18-06(A).
  - l. The combined emissions from P001 and P013, measured as a summation of the emissions for all exhaust stacks serving both forming areas, shall not exceed 14.24 tons of PM<sub>10</sub> and 1.49 tons of fluorides per rolling, 12-month period.
  - m. The combined emissions from P001 and P013, measured as a summation of the emissions from all the exhaust stacks serving both forming areas, shall not exceed 6.41 tons of VOC per rolling, 12-month period.
  - n. The combined emissions from P001 and P013, measured as a summation of the emissions for all exhaust stacks serving both forming areas, shall not exceed 5.18 tons of methanol per rolling, 12-month period.
  - o. Visible particulate emissions from the stack servicing this emissions unit shall not exceed 20% opacity, as a 6-minute average.
- c) Operational Restrictions
- (1) The permittee shall burn only natural gas as a fuel in the emissions unit.
  - (2) The rate of glass pull from this emissions unit shall not exceed 69,350 tons per rolling, 12-month period, based upon a rolling, 12-month summation of the hourly pull rates.
  - (3) The fluorspar addition rate to the batch mixer, as a weight percent of the batch, shall not exceed the rate established during the most recent performance test that demonstrated compliance with the F- emissions limitations from the glass furnace, the forehearth, and the forming area.
  - (4) The permittee shall develop and implement written standard operating procedures (SOP) to be followed in order to maintain the emissions unit in compliance with the limitations contained in this permit and to minimize emissions during startup and shutdown of the unit. The SOP shall include, but shall not be limited to the following:
    - a. Startup and shutdown procedures, developed to consider and minimize emissions.



- b. Procedures to determine, record, and report the cause of and remedy to a malfunction of any control device and any deviations from the compliant range of operating parameters being monitored and used to demonstrate compliance, including the date and time the malfunction/deviation began and ended.
- c. A maintenance and calibration schedule for each control device and parameter monitor that is consistent with the manufacturer's instructions and recommendations, for routine and long-term maintenance.
- d. The corrective actions or procedures to be taken in the event of a malfunction of a control device and/or a parameter monitor, and during any abnormal process modifications.
- e. The SOP shall specify the corrective actions to be followed when a monitored parameter is outside the compliant range established during the most recent emissions tests that demonstrated compliance. Provisions shall be included for records to be maintained of the time, date, parameter's deviation data, the corrective actions conducted, and if standard operating procedures were followed. The SOP shall be implemented for the following occurrences:
  - i. The permittee shall initiate corrective actions within 1 hour following any 3-hour block of time in which the NaOH addition rate is less than the minimum addition rate established during the most recent emissions tests that demonstrated compliance. Corrective actions shall be conducted in a timely manner according to the procedures defined in the SOP.
  - ii. The permittee shall initiate corrective action within 1 hour of an alarm from the bag leak detection system and complete corrective actions in a timely manner according to the procedures documented in this SOP. Examples of corrective actions that might be included in the SOP for the baghouse/fabric filter include:
    - (a) inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other conditions that may cause an increase in emission;
    - (b) sealing off defective bags or filter media;
    - (c) replacing defective bags or filter media, or otherwise repairing the control device;
    - (d) sealing off a defective baghouse compartment;
    - (e) cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system; and
    - (f) shutting down the process producing the particulate emissions.
  - iii. The permittee shall initiate corrective action within 1 hour following any discovery that the glass pull rate exceeds by more than 10% the



maximum glass pull rate established during the most recent emissions tests that demonstrate the emissions unit to be in compliance. Corrective actions shall be conducted in a timely manner according to the procedures documented in the SOP.

- iv. The permittee shall initiate corrective action within 1 hour following discovery that the fluorspar addition rate to the batch mixer, as a weight percent of the batch, is greater than the addition rate established during the most recent emissions tests that demonstrated compliance with the F-emissions limitations for the glass furnace, the forehearth, and the forming area. Corrective actions shall be conducted in a timely manner according to the procedures documented in the SOP.

d) Monitoring and/or Recordkeeping 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 keep records of each startup, shutdown, and malfunction event, as well as, a record of any actions taken during a startup, shutdown, or malfunction that are not consistent with the procedures in the SOP, as described in c)(4) of this permit.
- (3) The permittee shall operate and maintain equipment to continuously monitor the NaOH addition rate to the spray tower while the emissions unit is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following hourly records shall be maintained from the data documented by this monitor:
  - a. the concentration of the NaOH solution pumped to the spray tower system (in % by volume);
  - b. the flow rate (in gallons) of the NaOH solution pumped to the spray tower system;
  - c. the addition rate of NaOH to the spray tower system, in gallons per hour, calculated as the concentration of the NaOH solution multiplied by the volume of the NaOH solution, i.e., a. x b.; and
  - d. each 3-hour block of time in which the addition rate of NaOH was less than the minimum addition rate established during the most recent emissions tests that demonstrated compliance, and a record of the amount of time taken for corrective action to be initiated.

The records shall include the date and time of each exceedance/deviation, when corrective actions were initiated, the cause of each exceedance, the corrective actions taken and if they were the same as those documented in the SOP, and when the cause of each exceedance/deviation was corrected.



- (4) The permittee shall calibrate, maintain, and continuously operate a bag leak detection system when the emissions unit is in operation.
- a. A triboelectric bag leak detection system shall be installed, operated, adjusted, and maintained in a manner consistent with the U.S. Environmental Protection Agency guidance, "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015, September 1997). Other bag leak detection systems including, but not limited to, devices using light scattering and other effects, shall be installed, operated, adjusted, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.
  - b. The bag leak detection system shall be certified by the manufacturer to be capable of detecting particulate emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.
  - c. The bag leak detection system sensor shall produce an output of relative particulate emissions.
  - d. The bag leak detection system shall be equipped with an alarm system that will sound automatically when an increase in relative particulate emissions over a preset level is detected and the alarm shall be located such that it can be heard by the appropriate plant personnel.
  - e. The bag leak detection system shall be installed downstream of the baghouse. Where multiple bag leak detection systems are required, the system instrumentation and alarm may be shared among the monitors.
  - f. Initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time.
  - g. Following the initial adjustment, the permittee shall not adjust the range, averaging period, alarm setpoints, or alarm delay time except as detailed in the operations, maintenance, and monitoring plan. In no event shall the range be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless a responsible official certifies, by written report, that the baghouse has been inspected and found to be in good operating condition.

The permittee shall maintain records of each bag leak detection system alarm, including the date and time of the alarm, the amount of time taken for corrective action to be initiated, the cause of the alarm, an explanation of the corrective actions taken and if they were the same as those documented in the SOP, and when the cause of the alarm was corrected.

- (5) The permittee shall monitor and record the glass pull rate on a daily basis. The following records shall be maintained from the data documented:
- a. records of the daily glass pull rate;
  - b. the daily hours of operation;



- c. the average hourly glass pull rate, a./b., in tons per hour; and
- d. each day in which the average hourly glass pull rate exceeded by more than 10% the average hourly glass pull rate established during the most recent emissions tests that demonstrated compliance, along with the amount of time taken for corrective action to be initiated.

The records shall include the date and time of each exceedance/deviation, when corrective actions were initiated, the cause of each exceedance, the corrective actions taken and if they were the same as those documented in the SOP, and when the cause of each exceedance/deviation was corrected.

- (6) The permittee shall monitor and record daily the average fluorspar addition rate to the batch mixer, as a weight percent of the batch. The records shall include the date and time of each exceedance/deviation, when corrective actions were initiated, the cause of each exceedance, the corrective actions taken and if they were the same as those documented in the SOP, and when the cause of each exceedance/deviation was corrected.
- (7) For purposes of determining the total annual emissions from this emissions unit:
  - a. the permittee shall maintain monthly records of the volume of natural gas burned in the forehearth, in millions of standard cubic feet; and
  - b. the permittee shall maintain monthly records of the volume of natural gas burned in the forehearth as a rolling, 12-month summation of the monthly records above, in millions of standard cubic feet per rolling, 12-month period.
- (8) Each month the permittee shall calculate and maintain the following records:
  - a. the total emissions from P001 and P013, including the glass melting furnaces baghouse exhaust, all vents serving both forehearth areas and all exhaust stacks serving both forming areas, in tons of CO, tons of NO<sub>x</sub>, tons of PM<sub>10</sub>, tons of SO<sub>2</sub>, tons of VOC, and tons of F-;
  - b. the total rolling, 12-month summation of the combined emissions from P001 and P013, including the glass melting furnace baghouse exhaust, all vents serving both forehearth areas and for all exhaust stacks serving both forming areas, in tons of CO, tons of NO<sub>x</sub>, tons of PM<sub>10</sub>, tons of SO<sub>2</sub>, tons of VOC, and tons of F-per rolling, 12-month period; and
  - c. a record of the glass pull rate as a rolling, 12-month summation of the daily glass pull rates, including a record of any month in which the pull rate exceeded the allowable, rolling, 12-month rate of glass pull.
- (9) Following receipt of the compliant emissions test results, conducted as required in f)(1), the permittee shall maintain a record of the following parameter values, that will be used to monitor continuous compliance; a record of these parameters shall be maintained following each required emissions compliance test:



- a. The average glass pull rates recorded during the compliance test;
  - b. The minimum and average NaOH addition rate recorded during the compliance tests. The average shall be calculated using each reading of the meter, as recorded during each of the three compliance test runs; and
  - c. The average fluorspar addition rate recorded during the compliance tests.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.
  - (2) The permittee shall submit quarterly deviation (excursion) reports that identify any action(s) taken during startup, shutdown, or malfunction and/or during operations, maintenance, or monitoring that were inconsistent with the procedures documented in the SOP described in section c)(4) of this permit.
  - (3) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
    - a. Any month in which records documented an exceedance of the maximum allowable cumulative rolling 12-month glass pull rate limitation of 69,350 tons per rolling 12-months;
    - b. All periods of time during which the glass pull rate exceeded by more than 10% the daily glass pull rate established during the most recent emissions tests that demonstrated compliance;
    - c. All periods of time during which the NaOH addition rate to the spray tower was less than the minimum addition rate established during the most recent emissions tests that demonstrated compliance;
    - d. All periods of time during which the fluorspar content as a weight percent of the batch exceeded the content established during the most recent emissions tests that demonstrated compliance with the F- emissions limitations for the glass furnace, forehearth, and/or the forming area; and
    - e. All periods of time in which the bag leak detection alarm system was triggered.
  - (4) The permittee shall submit quarterly deviation reports that identify the following:
    - a. Any period of time (including the date) in which the permittee did not initiate corrective actions, as defined in the standard operating procedures, within 1 hour following any 3-hour block of time in which the NaOH addition rate is less than the minimum addition rate established during the most recent emissions tests that demonstrated compliance;
    - b. Any period of time (including the date) in which the permittee did not initiate corrective actions, as defined in the standard operating procedures, within 1 hour of an alarm from the bag leak detection system;



- c. Any period of time (including the date) in which the permittee did not initiate corrective actions, as defined in the standard operating procedures, within 1 hour following discovery that the glass pull rate exceeded by more than 10% the average glass pull rate established during the most recent emissions tests that demonstrated compliance; and
  - d. Any period of time (including the date) in which the permittee did not initiate corrective actions, as defined in the standard operating procedures, within 1 hour following the discovery of the fluorspar content as a weight percentage of the batch is greater than the content established during the most recent emissions tests that demonstrated compliance with the F- emissions limitations for the glass furnace, the forehearth, and/or the forming area.
- (5) The permittee shall submit quarterly deviation (excursion) reports that identify each month during which the combined emissions from P001 and P013, as a rolling 12-month summation, from the glass melting furnaces baghouse exhaust, from all vents serving both forehearth areas and from all exhaust stacks serving both forming areas, exceeded the applicable emission limitation in the tons of CO, tons of NO<sub>x</sub>, tons of PM<sub>10</sub>, tons of SO<sub>2</sub>, tons of VOC, and/or tons of fluorides per rolling, 12-month period.
- (6) Except as otherwise specified above, all reports in this permit shall be submitted in accordance with the requirements specified in section A. Standard Terms and Conditions.
- f) **Testing Requirements**
- (1) The permittee shall conduct, or have conducted, emission testing for the glass melting furnace in accordance with the following requirements:
- a. The emissions testing shall be conducted within 60 days after reaching full production, but not later than 180 days after the initial furnace startup following the installation of the electric boost system.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for CO, NO<sub>x</sub>, PE, PM<sub>10</sub>, SO<sub>2</sub>, F- and opacity.
  - c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates:
    - i. For CO, Method 10 of 40 CFR Part 60, Appendix A;
    - ii. For NO<sub>x</sub>, Method 7 of 40 CFR Part 60, Appendix A;
    - iii. For PE, Method 5 of 40 CFR Part 60, Appendix A, as specified in 40 CFR 60.293(e);
    - iv. For PM<sub>10</sub>, Method 201 and 202 of 40 CFR Part 51, Appendix M;
    - v. For SO<sub>2</sub>, Method 6 of 40 CFR Part 60, Appendix A using the procedures specified in OAC rule 3745-18-04;



- vi. For F-, Method 13B of 40 CFR Part 60 Appendix A; and
- vii. For opacity, Method 9 of 40 CFR Part 60, Appendix A.

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Toledo Division of Environmental Services or the Ohio EPA Central Office.
- e. If both melting furnaces P001 and P013 are to be tested simultaneously, they shall be operated at or near their maximum capacity and compliance shall be demonstrated with the combined total of the applicable emission limitations for each emissions unit. Each of the two units shall be tested, either together or separately as required in this section.
- f. All monitoring systems and equipment shall be installed, operational, and calibrated prior to the performance tests.
- g. Unless a different frequency is specified in this section or proposed and agreed upon by the Ohio EPA, the permittee shall monitor and record process and/or add-on control device parameters, that will be used to demonstrate continuous compliance following testing, at least every 15 minutes during the performance tests. This shall include the NaOH addition rate to the spray tower and a check-off noting that the baghouse alarm has not been activated. The arithmetic average for each parameter (excluding the baghouse) shall be calculated using all of the recorded measurements collected during the compliance demonstration.
- h. The permittee shall monitor and record the daily glass pull rate for each glass-melting furnace during any performance test required. The permittee shall determine the hourly average of the recorded measurements.
- i. The permittee shall monitor and record the daily fluorspar addition rate to the batch mixer, as a weight percent of the batch for each glass-melting furnace during any performance test required.

No later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Toledo Division of Environmental Services. 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 tests, and the person(s) who will be conducting the tests. Failure to submit such notification for review and approval prior to testing may result in the Toledo Divisions of Environmental Services or the Ohio EPA Central Office's refusal to accept the results of the emission tests.

Personnel from the Toledo Division of Environmental Services or the Ohio EPA Central Office 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 on the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Toledo Division of Environmental Services 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 Toledo Division of Environmental Services or the Ohio EPA Central Office.

(2) Compliance with the Glass Melting Furnace Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

20% opacity, as a 6-minute average

Applicable Compliance Method:

If required, compliance shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 using the methods and procedures specified in OAC rule 3745-17-03(B)(1), or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

b. Emission Limitation:

0.01 pound of CO per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

c. Emission Limitation:

0.35 ton of CO per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable CO emission limitation (0.01 pound of CO per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour) and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the short-term allowable emission limitation and the glass pull restriction, compliance shall also be shown with the annual emission limitation.



d. Emission Limitation:

1.71 pounds of NO<sub>x</sub> per ton of glass pull

Applicable Compliance Method:

The permittee shall demonstrate compliance through the testing requirements contained in f)(1), in accordance with the methods and procedures specified in Methods 1 through 4 and 7 of 40 CFR Part 60, Appendix A; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

e. Emission Limitation:

60 tons of NO<sub>x</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable NO<sub>x</sub> emission limitation (1.71 pounds of NO<sub>x</sub> per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

0.50 pound of PE per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Methods 1 through 5 of 40 CFR Part 60, Appendix A using the methods and procedures specified in 40 CFR 60.293(e).

g. Emission Limitation:

17.34 tons of PE per year

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PE emission limitation (0.50 pound of PE per ton of glass pull) by the maximum annual glass pulled (69,350 tons), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.



h. Emission Limitation:

1.87 pounds of PM<sub>10</sub> per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 201 and 202 of 40 CFR Part 51, Appendix M, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

i. Emission Limitation:

66 tons of PM<sub>10</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PM<sub>10</sub> emission limitation (1.87 pounds of PM<sub>10</sub> per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

j. Emission Limitation:

2.02 pounds of SO<sub>2</sub> per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 6 of 40 CFR Part 60 Appendix A using the methods and procedures specified in OAC rule 3745-18-04, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

k. Emission Limitation:

71 tons of SO<sub>2</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable SO<sub>2</sub> emission limitation (2.02 pounds of SO<sub>2</sub> per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.



I. Emission Limitation:

0.04 pound of VOC per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 25 of 40 CFR Part 60 Appendix A, using the methods and procedures specified in OAC rule 3745-21-10; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

m. Emission Limitation:

1.4 tons of VOC per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable VOC emission limitation (0.04 pound of VOC per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

n. Emission Limitation:

0.36 pound of F- per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 13B of 40 CFR Part 60 Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA

o. Emission Limitation:

13 tons of F- per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable F- emission limitation (0.36 pound of F- per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.



(3) Compliance with the Forehearth Area Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

Visible emissions of fugitive dust shall not exceed 20 percent opacity as a three-minute average.

Applicable Compliance Method:

Compliance with the limitation for visible emissions of fugitive dust shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9 and the procedures specified in OAC rule 3745-17-03(B)(3).

b. Emission Limitation:

0.20 pound of PE per hour

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 1 through 5 of 40 CFR Part 60, Appendix A, using the methods and procedures specified in OAC rule 3745-17-03(B)(10); or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

c. Emission Limitation:

0.88 ton of PE per year

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PE emission limitation (0.20 pound per hour) by the number of hours in a year (8760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

d. Emission Limitation:

1.8 pounds of CO per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-1 dated 7/98, as follows: multiply the emission factor of 84 pounds of CO emissions per million standard cubic feet by the maximum volumetric fuel input capacity of 0.021 MMscf per hour.



If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

e. Emission Limitation:

7.9 tons CO per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable CO emission limitation (1.8 pounds per hour) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

2.1 pounds of NO<sub>x</sub> per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-1 dated 7/98, as follows: multiply the emission factor of 100 pounds of NO<sub>x</sub> emissions per million standard cubic feet by the maximum volumetric fuel input capacity of 0.021 MMscf per hour.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Methods 1 through 4 and 7 of 40 CFR Part 60, Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

g. Emission Limitation:

9.2 tons of NO<sub>x</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable NO<sub>x</sub> emission limitation (2.1 pounds of NO<sub>x</sub> per hour) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

h. Emission Limitation:

0.011 pound of PM<sub>10</sub> per ton of glass pull



Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 201 and 202 of 40 CFR Part 51, Appendix M, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

i. Emission Limitation:

0.39 ton PM<sub>10</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PM<sub>10</sub> emission limitation (0.011 pound of PM<sub>10</sub> per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

j. Emission Limitation:

0.02 pound of SO<sub>2</sub> per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-2 dated 7/98, as follows: multiply the emission factor of 0.6 pound of SO<sub>2</sub> emissions per million standard cubic feet by the maximum volumetric fuel input capacity of 0.021 MMscf per hour.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 6 of 40 CFR Part 60 Appendix A, using the methods and procedures specified in OAC rule 3745-18-04, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

k. Emission Limitation:

0.09 ton of SO<sub>2</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable SO<sub>2</sub> emission limitation (0.02 pound of SO<sub>2</sub> per hour) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.



I. Emission Limitation:

0.12 pound of VOC per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-2 dated 7/98, as follows: multiply the emission factor of 5.5 pounds of VOC emissions per million standard cubic feet by the maximum volumetric fuel input capacity of 0.021 MMscf per hour.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 25 of 40 CFR Part 60 Appendix A, using the methods and procedures specified in OAC rule 3745-21-10; or other U.S. EPA approved test method, with prior approval from Ohio EPA.

m. Emission Limitation:

0.53 ton of VOC per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable VOC emission limitation (0.12 pound of VOC per hour) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

n. Emission Limitation:

0.038 pound of F- per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 1 through 4 and 13B of 40 CFR Part 60 Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

o. Emission Limitation:

1.32 tons of F- per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable F- emission limitation (0.038 pound of F- per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore,



if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

- (4) Compliance with the Fiberglass Forming Area Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

0.50 pound of PE per hour

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 1 through 5 of 40 CFR Part 60, Appendix A, using the methods and procedures specified in OAC rule 3745-17-03(B)(10); or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

- b. Emission Limitation:

2.2 tons of PE per year

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PE emission limitation (0.50 pound per hour) by the number of hours in a year (8760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

- c. Emission Limitation:

0.20 pound of PM<sub>10</sub> per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 201 and 202 of 40 CFR Part 51, Appendix M, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

- d. Emission Limitation:

7.0 tons of PM<sub>10</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PM<sub>10</sub> emission limitation (0.20 pound of PM<sub>10</sub> per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8.760 hours), and then dividing by 2,000 pounds per ton.



Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

0.09 pound of VOC per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 25 of 40 CFR Part 60 Appendix A. using the methods and procedures specified in OAC rule 3745-21-10; or other U.S. EPA approved test methods may be used with prior approval from Ohio EPA.

f. Emission Limitation:

3.2 tons of VOC per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable VOC emission limitation (0.09 pound of VOC per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

g. Emission Limitation:

0.021 pound of F- per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 1 through 4 and 13B of 40 CFR Part 60 Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

h. Emission Limitation:

0.73 ton of F- per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable F- emission limitation (0.021 pound of F- per ton of glass pull) by the maximum hourly averaged glass pull rate (8.0 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.



i. Emission Limitation:

The combined emissions from P001 and P013, measured as a summation of the emissions for all exhaust stacks serving both forming areas, shall not exceed 5.18 tons of methanol per rolling, 12-month period.

Applicable Compliance Method:

This limit was established to reflect a maximum potential to emit for methanol. Actual methanol emissions at full production are expected to be less than 0.5 ton per year based on mass balance. If required, the company shall submit an updated mass balance demonstrating the actual methanol losses.

g) Miscellaneous Requirements

(1) None.



**2. P013, Furnace 9212**

**Operations, Property and/or Equipment Description:**

9212 Glass melting furnace(with electric boost), forehearth, and forming room

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	9212 glass melting furnace with natural gas oxyfuel firing with electric boost, controlled by a wet caustic scrubber and fabric filter – 8.4 tons per hour	
a.	OAC rule 3745-31-05(A)(3)	1.87 pounds of particulate emissions as PM <sub>10</sub> per ton of glass pull 69 tons PM <sub>10</sub> per rolling, 12-month period 18.25 tons of filterable particulate emissions (PE) per year 0.01 pound of carbon monoxide (CO) per ton of glass pull 0.37 ton CO per rolling, 12-month period 1.71 pounds of nitrogen oxides (NO <sub>x</sub> ) per ton of glass pull 63 tons NO <sub>x</sub> per rolling, 12-month period 2.02 pounds of sulfur dioxide (SO <sub>2</sub> ) per ton of glass pull 75 tons SO <sub>2</sub> per rolling, 12-month period 0.04 pound of volatile organic compounds (VOC) per ton of glass pull 1.5 tons VOC per rolling, 12-month period 0.36 pound of fluorides (F-) per ton of glass pull 14 tons F- per rolling, 12-month period See b)(2)a. and b)(2)o.
b.	OAC rule 3745-31-10 through 20	See b)(2)b.
c.	OAC rule 3745-31-05(D)	See b)(2)c. and b)(2)d.
d.	OAC rule 3745-17-07(A)(1)	See b)(2)e.
e.	OAC rule 3745-17-11(B)(1)	Requirements for 40 CFR Part 60, Subpart CC are more stringent than this



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		rule.
f.	OAC rule 3745-18-06(E)(2)	See b)(2)e.
g.	40 CFR Part 60, Subpart CC	0.50 pound of filterable particulate emissions (PE) per ton of glass pull
Fiberglass forehearth area with natural gas over firing and no controls		
h.	OAC rule 3745-31-05(A)(3)	0.011 pound of particulate emissions as PM <sub>10</sub> per ton of glass pull
		0.41 ton PM <sub>10</sub> per rolling, 12-month period
		0.20 pound of filterable particulate emissions (PE) per hour
		0.88 ton PE per year
		1.9 pounds of carbon monoxide (CO) per hour
		8.3 tons CO per rolling, 12-month period
		2.2 pounds of nitrogen oxides (NO <sub>x</sub> ) per hour
		9.6 tons NO <sub>x</sub> per rolling, 12-month period
		0.02 pound of sulfur dioxide (SO <sub>2</sub> ) per hour
		0.09 ton SO <sub>2</sub> per rolling, 12-month period
		0.13 pound of volatile organic compounds (VOC) per hour
		0.57 ton VOC per rolling, 12-month period
		0.038 pound of fluorides (F-) per ton of glass pull
		1.39 tons F- per rolling 12-month period
i.	OAC rule 3745-31-10 through 20	See b)(2)h.
j.	OAC rule 3745-31-05(D)	See b)(2)i. and b)(2)j.
k.	OAC rule 3745-17-07(B)(1)	Visible emissions of fugitive dust shall not exceed twenty percent opacity as a three-minute average.
l.	OAC rule 3745-17-08(B)	See b)(2)j.
m.	OAC rule 3745-18-06(A)	See b)(2)k.
Fiberglass forming area with rolled-on binder application and no controls		
n.	OAC rule 3745-31-05(A)(3)	0.20 pound of particulate emissions as PM <sub>10</sub> per ton of glass pull
		7.3 tons PM <sub>10</sub> per rolling, 12-month period
		0.50 pound of filterable particulate emissions (PE) per hour
		2.2 tons PE per year
		0.09 pound of volatile organic compounds (VOC) per ton of glass pull
		3.3 tons VOC per rolling, 12-month period
		0.21 pound of fluorides (F-) per tons of



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
		glass pull 0.77 ton F- per rolling, 12-month period See b)(2)f.
o.	OAC rule 3745-31-10 through 20	See b)(2)l.
p.	OAC rule 3745-31-05(D)	See b)(2)m. and b)(2)n.
q.	OAC rule 3745-17-07(A)(1)	See b)(2)o.
r.	OAC rule 3745-17-08(B)	See b)(2)g.
s.	OAC rule 3745-17-11(B)(1)	See b)(2)e.

(2) Additional Terms and Conditions

- a. The requirements of this rule also include compliance with the requirements of OAC rules 3745-17-07(A)(1), 3745-31-10 through 20, and 40 CFR Part 60, Subpart CC.
- b. The combined emissions from P001 and P013, measured at the glass melting furnace baghouse exhaust, shall not exceed 133.10 tons of PM<sub>10</sub> and 25.62 tons of fluorides per rolling, 12-month period.
- c. The combined emissions from P001 and P013, measured at the glass melting furnace baghouse exhaust, shall not exceed 121.71 tons of NO<sub>x</sub>, 142.77 tons of SO<sub>2</sub> and 2.85 tons of VOC per rolling, 12-month period.
- d. The combined emissions from P001 and P013, measured at the glass melting furnace baghouse exhaust, shall not exceed 0.71 ton of CO per rolling, 12-month period.
- e. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- f. The requirements of this rule also include compliance with the requirements of OAC rule 3745-31-10 through 20, and OAC rule 3745-31-05(D).
- g. The permittee shall install best available control measures that are sufficient to minimize or eliminate visible emissions of fugitive dust. The collection efficiency shall be sufficient to minimize or eliminate visible particulate emissions of fugitive dust at the point(s) of capture to the extent possible with good engineering design.
- h. The combined emissions from P001 and P013, measured as a summation of the emissions for all vents serving both forehearth areas, shall not exceed 0.78 ton of PM<sub>10</sub> and 2.70 tons of fluorides per rolling, 12-month period.
- i. The combined emissions from P001 and P013, measured as a summation of the emissions for all vents serving both forehearth areas, shall not exceed 15.91 tons of NO<sub>x</sub>, 0.78 ton of PM<sub>10</sub>, 0.10 ton of SO<sub>2</sub>, and 0.87 ton of VOC per rolling, 12-month period.



- j. The combined emissions from P001 and P013, measured as a summation of the emissions from all vents serving both forehearth areas, shall not exceed 13.36 tons of CO per rolling, 12-month period.
  - k. OAC rule 3745-18-06(A) 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 a fuel. However, OAC rule 3745-18-06(A) requires that the natural gas being combusted meet certain fuel quality restrictions (a heat content greater than 950 Btu per standard cubic foot and a sulfur content less than 0.6 pound per million standard cubic feet). Because the natural gas being burned in this emissions unit is the standard, pipeline quality natural gas supplied to industrial, commercial, and residential users throughout the State, it is assumed that it meets the fuel quality restrictions; and no monitoring, record keeping or reporting requirements are necessary to ensure ongoing compliance with OAC rule 3745-18-06(A).
  - l. The combined emissions from P001 and P013, measured as a summation of the emissions for all exhaust stacks serving both forming areas, shall not exceed 14.24 tons of PM<sub>10</sub> and 1.49 tons of fluorides per rolling, 12-month period.
  - m. The combined emissions from P001 and P013, measured as a summation of the emissions from all the exhaust stacks serving both forming areas, shall not exceed 6.41 tons of VOC per rolling, 12-month period.
  - n. The combined emissions from P001 and P013, measured as a summation of the emissions for all exhaust stacks serving both forming areas, shall not exceed 5.18 tons of methanol per rolling, 12-month period.
  - o. Visible particulate emissions from the stack servicing this emissions unit shall not exceed 20% opacity, as a 6-minute average.
- c) Operational Restrictions
- (1) The permittee shall burn only natural gas as a fuel in the emissions unit.
  - (2) The rate of glass pull from this emissions unit shall not exceed 73,000 tons per rolling, 12-month period, based upon a rolling, 12-month summation of the hourly pull rates.
  - (3) The fluorspar addition rate to the batch mixer, as a weight percent of the batch, shall not exceed the rate established during the most recent performance test that demonstrated compliance with the F- emissions limitations from the glass furnace, the forehearth, and the forming area.
  - (4) The permittee shall develop and implement written standard operating procedures (SOP) to be followed in order to maintain the emissions unit in compliance with the limitations contained in this permit and to minimize emissions during startup and shutdown of the unit. The SOP shall include, but shall not be limited to the following:
    - a. Startup and shutdown procedures, developed to consider and minimize emissions.



- b. Procedures to determine, record, and report the cause of and remedy to a malfunction of any control device and any deviations from the compliant range of operating parameters being monitored and used to demonstrate compliance, including the date and time the malfunction/deviation began and ended.
- c. A maintenance and calibration schedule for each control device and parameter monitor that is consistent with the manufacturer's instructions and recommendations, for routine and long-term maintenance.
- d. The corrective actions or procedures to be taken in the event of a malfunction of a control device and/or a parameter monitor, and during any abnormal process modifications.
- e. The SOP shall specify the corrective actions to be followed when a monitored parameter is outside the compliant range established during the most recent emissions tests that demonstrated compliance. Provisions shall be included for records to be maintained of the time, date, parameter's deviation data, the corrective actions conducted, and if standard operating procedures were followed. The SOP shall be implemented for the following occurrences:
  - i. The permittee shall initiate corrective actions within 1 hour following any 3-hour block of time in which the NaOH addition rate is less than the minimum addition rate established during the most recent emissions tests that demonstrated compliance. Corrective actions shall be conducted in a timely manner according to the procedures defined in the SOP.
  - ii. The permittee shall initiate corrective action within 1 hour of an alarm from the bag leak detection system and complete corrective actions in a timely manner according to the procedures documented in this SOP. Examples of corrective actions that might be included in the SOP for the baghouse/fabric filter include:
    - (a) inspecting the baghouse for air leaks, torn or broken bags or filter media, or any other conditions that may cause an increase in emission;
    - (b) sealing off defective bags or filter media;
    - (c) replacing defective bags or filter media, or otherwise repairing the control device;
    - (d) sealing off a defective baghouse compartment;
    - (e) cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system; and
    - (f) shutting down the process producing the particulate emissions.
  - iii. The permittee shall initiate corrective action within 1 hour following any discovery that the glass pull rate exceeds the average glass pull rate



established during the most recent emissions tests that demonstrate the emissions unit to be in compliance. Corrective actions shall be conducted in a timely manner according to the procedures documented in the SOP.

- iv. The permittee shall initiate corrective action within 1 hour following discovery that the fluorspar addition rate to the batch mixer, as a weight percent of the batch, is greater than the addition rate established during the most recent emissions tests that demonstrated compliance with the F-emissions limitations for the glass furnace, the forehearth, and the forming area. Corrective actions shall be conducted in a timely manner according to the procedures documented in the SOP.

d) **Monitoring and/or Recordkeeping 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 keep records of each startup, shutdown, and malfunction event, as well as, a record of any actions taken during a startup, shutdown, or malfunction that are not consistent with the procedures in the SOP, as described in c)(4) of this permit.
- (3) The permittee shall operate and maintain equipment to continuously monitor the NaOH addition rate to the spray tower while the emissions unit is in operation. The monitoring devices and any recorders shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's recommendations, instructions, and operating manuals. The following hourly records shall be maintained from the data documented by this monitor:
  - a. the concentration of the NaOH solution pumped to the spray tower system (in % by volume);
  - b. the flow rate (in gallons) of the NaOH solution pumped to the spray tower system;
  - c. the addition rate of NaOH to the spray tower system, in gallons per hour, calculated as the concentration of the NaOH solution multiplied by the volume of the NaOH solution, i.e., a. x b.; and
  - d. each 3-hour block of time in which the addition rate of NaOH was less than the minimum addition rate established during the most recent emissions tests that demonstrated compliance, and a record of the amount of time taken for corrective action to be initiated.

The records shall include the date and time of each exceedance/deviation, when corrective actions were initiated, the cause of each exceedance, the corrective actions taken and if they were the same as those documented in the SOP, and when the cause of each exceedance/deviation was corrected.



- (4) The permittee shall calibrate, maintain, and continuously operate a bag leak detection system when the emissions unit is in operation.
- a. A triboelectric bag leak detection system shall be installed, operated, adjusted, and maintained in a manner consistent with the U.S. Environmental Protection Agency guidance, "Fabric Filter Bag Leak Detection Guidance" (EPA-454/R-98-015, September 1997). Other bag leak detection systems including, but not limited to, devices using light scattering and other effects, shall be installed, operated, adjusted, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.
  - b. The bag leak detection system shall be certified by the manufacturer to be capable of detecting particulate emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.
  - c. The bag leak detection system sensor shall produce an output of relative particulate emissions.
  - d. The bag leak detection system shall be equipped with an alarm system that will sound automatically when an increase in relative particulate emissions over a preset level is detected and the alarm shall be located such that it can be heard by the appropriate plant personnel.
  - e. The bag leak detection system shall be installed downstream of the baghouse. Where multiple bag leak detection systems are required, the system instrumentation and alarm may be shared among the monitors.
  - f. Initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time.
  - g. Following the initial adjustment, the permittee shall not adjust the range, averaging period, alarm setpoints, or alarm delay time except as detailed in the operations, maintenance, and monitoring plan. In no event shall the range be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless a responsible official certifies, by written report, that the baghouse has been inspected and found to be in good operating condition.

The permittee shall maintain records of each bag leak detection system alarm, including the date and time of the alarm, the amount of time taken for corrective action to be initiated, the cause of the alarm, an explanation of the corrective actions taken and if they were the same as those documented in the SOP, and when the cause of the alarm was corrected.

- (5) The permittee shall monitor and record the glass pull rate on a daily basis. The following records shall be maintained from the data documented:
- a. records of the daily glass pull rate;
  - b. the daily hours of operation;



- c. the average hourly glass pull rate, a./b., in tons per hour; and
- d. each day in which the average hourly glass pull rate exceeded by more than 10% the average hourly glass pull rate established during the most recent emissions tests that demonstrated compliance, along with the amount of time taken for corrective action to be initiated.

The records shall include the date and time of each exceedance/deviation, when corrective actions were initiated, the cause of each exceedance, the corrective actions taken and if they were the same as those documented in the SOP, and when the cause of each exceedance/deviation was corrected.

- (6) The permittee shall monitor and record daily the average fluorspar addition rate to the batch mixer, as a weight percent of the batch. The records shall include the date and time of each exceedance/deviation, when corrective actions were initiated, the cause of each exceedance, the corrective actions taken and if they were the same as those documented in the SOP, and when the cause of each exceedance/deviation was corrected.
- (7) For purposes of determining the total annual emissions from this emissions unit:
  - a. the permittee shall maintain monthly records of the volume of natural gas burned in the forehearth, in millions of standard cubic feet; and
  - b. the permittee shall maintain monthly records of the volume of natural gas burned in the forehearth as a rolling, 12-month summation of the monthly records above, in millions of standard cubic feet per rolling, 12-month period.
- (8) Each month the permittee shall calculate and maintain the following records:
  - a. the total emissions from P001 and P013, including the glass melting furnaces baghouse exhaust, all vents serving both forehearth areas and all exhaust stacks serving both forming areas, in tons of CO, tons of NO<sub>x</sub>, tons of PM<sub>10</sub>, tons of SO<sub>2</sub>, tons of VOC, and tons of F-;
  - b. the total rolling, 12-month summation of the combined emissions from P001 and P013, including the glass melting furnace baghouse exhaust, all vents serving both forehearth areas and for all exhaust stacks serving both forming areas, in tons of CO, tons of NO<sub>x</sub>, tons of PM<sub>10</sub>, tons of SO<sub>2</sub>, tons of VOC, and tons of F-per rolling, 12-month period; and
  - c. a record of the glass pull rate as a rolling, 12-month summation of the daily glass pull rates, including a record of any month in which the pull rate exceeded the allowable, rolling, 12-month rate of glass pull.
- (9) Following receipt of the compliant emissions test results, conducted as required in f)(1), the permittee shall maintain a record of the following parameter values, that will be used to monitor continuous compliance; a record of these parameters shall be maintained following each required emissions compliance test:



- a. The average glass pull rates recorded during the compliance test;
  - b. The minimum and average NaOH addition rate recorded during the compliance tests. The average shall be calculated using each reading of the meter, as recorded during each of the three compliance test runs; and
  - c. The average fluorspar addition rate recorded during the compliance tests.
- e) Reporting Requirements
- (1) The permittee shall submit quarterly deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.
  - (2) The permittee shall submit quarterly deviation (excursion) reports that identify any action(s) taken during startup, shutdown, or malfunction and/or during operations, maintenance, or monitoring that were inconsistent with the procedures documented in the SOP described in section c)(4) of this permit.
  - (3) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
    - a. Any month in which records documented an exceedance of the maximum allowable cumulative rolling 12-month glass pull rate limitation of 73,000 tons per rolling 12-months;
    - b. All periods of time during which the glass pull rate exceeded by more than 10% the daily glass pull rate established during the most recent emissions tests that demonstrated compliance;
    - c. All periods of time during which the NaOH addition rate to the spray tower was less than the minimum addition rate established during the most recent emissions tests that demonstrated compliance;
    - d. All periods of time during which the fluorspar content as a weight percent of the batch exceeded the content established during the most recent emissions tests that demonstrated compliance with the F- emissions limitations for the glass furnace, the forehearth, and/or the forming area; and
    - e. All periods of time in which the bag leak detection alarm system was triggered.
  - (4) The permittee shall submit quarterly deviation reports that identify the following:
    - a. Any period of time (including the date) in which the permittee did not initiate corrective actions, as defined in the standard operating procedures, within 1 hour following any 3-hour block of time in which the NaOH addition rate is less than the minimum addition rate established during the most recent emissions tests that demonstrated compliance;
    - b. Any period of time (including the date) in which the permittee did not initiate corrective actions, as defined in the standard operating procedures, within 1 hour of an alarm from the bag leak detection system;



- c. Any period of time (including the date) in which the permittee did not initiate corrective actions, as defined in the standard operating procedures, within 1 hour following discovery that the glass pull rate exceeded by more than 10% the average glass pull rate established during the most recent emissions tests that demonstrated compliance; and
  - d. Any period of time (including the date) in which the permittee did not initiate corrective actions, as defined in the standard operating procedures, within 1 hour following the discovery of the fluorspar content as a weight percentage of the batch is greater than the content established during the most recent emissions tests that demonstrated compliance with the F- emissions limitations for the glass furnace, the forehearth, and/or the forming area.
- (5) The permittee shall submit quarterly deviation (excursion) reports that identify each month during which the combined emissions from P001 and P013, as a rolling 12-month summation, from the glass melting furnaces baghouse exhaust, from all vents serving both forehearth areas and from all exhaust stacks serving both forming areas, exceeded the applicable emission limitation in the tons of CO, tons of NO<sub>x</sub>, tons of PM<sub>10</sub>, tons of SO<sub>2</sub>, tons of VOC, and/or tons of fluorides per rolling, 12-month period.
- (6) Except as otherwise specified above, all reports in this permit shall be submitted in accordance with the requirements specified in section A. Standard Terms and Conditions.
- f) **Testing Requirements**
- (1) The permittee shall conduct, or have conducted, emission testing for the glass melting furnace in accordance with the following requirements:
- a. The emissions testing shall be conducted within 60 days after reaching full production, but not later than 180 days after the initial furnace startup following the installation of the electric boost system.
  - b. The emission testing shall be conducted to demonstrate compliance with the allowable mass emission rates for CO, NO<sub>x</sub>, PE, PM<sub>10</sub>, SO<sub>2</sub>, F- and opacity.
  - c. The following test methods shall be employed to demonstrate compliance with the allowable mass emission rates:
    - i. For CO, Method 10 of 40 CFR Part 60, Appendix A;
    - ii. For NO<sub>x</sub>, Method 7 of 40 CFR Part 60, Appendix A;
    - iii. For PE, Method 5 of 40 CFR Part 60, Appendix A, as specified in 40 CFR 60.293(e);
    - iv. For PM<sub>10</sub>, Method 201 and 202 of 40 CFR Part 51, Appendix M;
    - v. For SO<sub>2</sub>, Method 6 of 40 CFR Part 60, Appendix A using the procedures specified in OAC rule 3745-18-04;



- vi. For F-, Method 13B of 40 CFR Part 60 Appendix A; and
- vii. For opacity, Method 9 of 40 CFR Part 60, Appendix A.

Alternative U.S. EPA approved test methods may be used with prior approval from the Ohio EPA.

- d. The tests shall be conducted while the emissions unit is operating at or near its maximum capacity, unless otherwise specified or approved by the Toledo Division of Environmental Services or the Ohio EPA Central Office.
- e. If both melting furnaces P001 and P013 are to be tested simultaneously, they shall be operated at or near their maximum capacity and compliance shall be demonstrated with the combined total of the applicable emission limitations for each emissions unit. Each of the two units shall be tested, either together or separately as required in this section.
- f. All monitoring systems and equipment shall be installed, operational, and calibrated prior to the performance tests.
- g. Unless a different frequency is specified in this section or proposed and agreed upon by the Ohio EPA, the permittee shall monitor and record process and/or add-on control device parameters, that will be used to demonstrate continuous compliance following testing, at least every 15 minutes during the performance tests. This shall include the NaOH addition rate to the spray tower and a check-off noting that the baghouse alarm has not been activated. The arithmetic average for each parameter (excluding the baghouse) shall be calculated using all of the recorded measurements collected during the compliance demonstration.
- h. The permittee shall monitor and record the daily glass pull rate for each glass-melting furnace during any performance test required. The permittee shall determine the hourly average of the recorded measurements.
- i. The permittee shall monitor and record the daily fluorspar addition rate to the batch mixer, as a weight percent of the batch for each glass-melting furnace during any performance test required.

No later than 30 days prior to the proposed test date(s), the permittee shall submit an "Intent to Test" notification to the Toledo Division of Environmental Services. 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 tests, and the person(s) who will be conducting the tests. Failure to submit such notification for review and approval prior to testing may result in the Toledo Divisions of Environmental Services or the Ohio EPA Central Office's refusal to accept the results of the emission tests.

Personnel from the Toledo Division of Environmental Services or the Ohio EPA Central Office 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 on the results of the emissions tests shall be signed by the person or persons responsible for the tests and submitted to the Toledo Division of Environmental Services 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 Toledo Division of Environmental Services or the Ohio EPA Central Office.

- (2) Compliance with the Glass Melting Furnace Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emission Limitation:

20% opacity, as a 6-minute average

Applicable Compliance Method:

If required, compliance shall be determined through visible emissions observations performed in accordance with 40 CFR Part 60, Appendix A, Method 9 using the methods and procedures specified in OAC rule 3745-17-03(B)(1), or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

- b. Emission Limitation:

0.01 pound of CO per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

- c. Emission Limitation:

0.37 ton of CO per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable CO emission limitation (0.01 pound of CO per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with hourly limitation, compliance shall also be shown with the annual emission limitation.



d. Emission Limitation:

1.71 pounds of NO<sub>x</sub> per ton of glass pull

Applicable Compliance Method:

The permittee shall demonstrate compliance through the testing requirements contained in f)(1), in accordance with the methods and procedures specified in Methods 1 through 4 and 7 of 40 CFR Part 60, Appendix A; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

e. Emission Limitation:

63 tons of NO<sub>x</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable NO<sub>x</sub> emission limitation (1.71 pounds of NO<sub>x</sub> per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

0.50 pound of PE per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Methods 1 through 5 of 40 CFR Part 60, Appendix A using the methods and procedures specified in 40 CFR 60.293(e).

g. Emission Limitation:

18.25 tons of PE per year

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PE emission limitation (0.50 pound of PE per ton of glass pull) by the maximum annual glass pulled (73,000 tons per rolling, 12-month period), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

h. Emission Limitation:

1.87 pounds of PM<sub>10</sub> per ton of glass pull



Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 201 and 202 of 40 CFR Part 51, Appendix M, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

i. Emission Limitation:

69 tons of  $PM_{10}$  per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable  $PM_{10}$  emission limitation (1.87 pounds of  $PM_{10}$  per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

j. Emission Limitation:

2.02 pounds of  $SO_2$  per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 6 of 40 CFR Part 60 Appendix A using the methods and procedures specified in OAC rule 3745-18-04, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

k. Emission Limitation:

75 tons of  $SO_2$  per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable  $SO_2$  emission limitation (2.02 pounds of  $SO_2$  per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

l. Emission Limitation:

0.04 pound of VOC per ton of glass pull



Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 25 of 40 CFR Part 60 Appendix A, using the methods and procedures specified in OAC rule 3745-21-10; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

m. Emission Limitation:

1.5 tons of VOC per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable VOC emission limitation (0.04 pound of VOC per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

n. Emission Limitation:

0.36 pound of F- per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 13B of 40 CFR Part 60 Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

o. Emission Limitation:

14 tons of F- per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable F- emission limitation (0.36 pound of F- per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

(3) Compliance with the Forehearth Area Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:



a. Emission Limitation:

Visible emissions of fugitive dust shall not exceed 20 percent opacity as a three-minute average.

Applicable Compliance Method:

Compliance with the limitation for visible emissions of fugitive dust shall be determined through visible emissions observations performed in accordance U.S. EPA Method 9 and the procedures specified in OAC rule 3745-17-03(B)(3).

b. Emission Limitation:

0.20 pound of PE per hour

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 1 through 5 of 40 CFR Part 60, Appendix A, using the methods and procedures specified in OAC rule 3745-17-03(B)(10); or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

c. Emission Limitation:

0.88 ton of PE per year

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PE emission limitation (0.20 pound per hour) by the number of hours in a year (8760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

d. Emission Limitation:

1.9 pounds of CO per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-1 dated 7/98, as follows: multiply the emission factor of 84 pounds of CO emissions per million standard cubic feet by the maximum volumetric fuel input capacity of 0.022MMscf per hour.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Methods 1 through 4 and 10 of 40 CFR Part 60, Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.



e. Emission Limitation:

8.3 tons CO per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable CO emission limitation (1.9 pounds per hour) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

f. Emission Limitation:

2.2 pounds of NO<sub>x</sub> per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-1 dated 7/98, as follows: multiply the emission factor of 100 pounds of NO<sub>x</sub> emissions per million standard cubic feet by the maximum volumetric fuel input capacity of 0.022MMscf per hour.

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with the methods and procedures specified in Methods 1 through 4 and 7 of 40 CFR Part 60, Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

g. Emission Limitation:

9.2 tons of NO<sub>x</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable NO<sub>x</sub> emission limitation (2.2 pounds of NO<sub>x</sub> per hour) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

h. Emission Limitation:

0.011 pound of PM<sub>10</sub> per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 201 and 202 of 40 CFR Part 51, Appendix M, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.



i. Emission Limitation:

0.41 ton PM<sub>10</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PM<sub>10</sub> emission limitation (0.011 pound of PM<sub>10</sub> per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

j. Emission Limitation:

0.02 pound of SO<sub>2</sub> per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-2 dated 7/98, as follows: multiply the emission factor of 0.6 pound of SO<sub>2</sub> emissions per million standard cubic feet by the maximum volumetric fuel input capacity of 0.022MMscf per hour.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 6 of 40 CFR Part 60 Appendix A, using the methods and procedures specified in OAC rule 3745-18-04, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

k. Emission Limitation:

0.09 ton of SO<sub>2</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable SO<sub>2</sub> emission limitation (0.02 pound of SO<sub>2</sub> per hour) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

l. Emission Limitation:

0.13 pound of VOC per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of



Air Pollution Emission Factors, Table 1.4-2 dated 7/98, as follows: multiply the emission factor of 5.5 pounds of VOC emissions per million standard cubic feet by the maximum volumetric fuel input capacity of 0.022MMscf per hour.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 25 of 40 CFR Part 60 Appendix A. using the methods and procedures specified in OAC rule 3745-21-10; or other U.S. EPA approved test method, with prior approval from Ohio EPA.

m. Emission Limitation:

0.57 ton of VOC per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable VOC emission limitation (0.13 pound of VOC per hour) by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

n. Emission Limitation:

0.038 pound of F- per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 1 through 4 and 13B of 40 CFR Part 60 Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

o. Emission Limitation:

1.39 tons of F- per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable F- emission limitation (0.038 pound of F- per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

- (4) Compliance with the Fiberglass Forming Area Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:



a. Emission Limitation:

0.50 pound of PE per hour

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 1 through 5 of 40 CFR Part 60, Appendix A, using the methods and procedures specified in OAC rule 3745-17-03(B)(10); or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

b. Emission Limitation:

2.2 tons of PE per year

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PE emission limitation (0.50 pound per hour) by the number of hours in a year (8760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

c. Emission Limitation:

0.20 pound of PM<sub>10</sub> per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 201 and 202 of 40 CFR Part 51, Appendix M, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

d. Emission Limitation:

7.3 tons of PM<sub>10</sub> per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable PM<sub>10</sub> emission limitation (0.20 pound of PM<sub>10</sub> per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

e. Emission Limitation:

0.09 pound of VOC per ton of glass pull



Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 25 of 40 CFR Part 60 Appendix A. using the methods and procedures specified in OAC rule 3745-21-10; or other U.S. EPA approved test methods may be used with prior approval from Ohio EPA.

f. Emission Limitation:

3.3 tons of VOC per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable VOC emission limitation (0.09 pound of VOC per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

g. Emission Limitation:

0.021 pound of F- per ton of glass pull

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation in accordance with Methods 1 through 4 and 13B of 40 CFR Part 60 Appendix A, or other U.S. EPA-approved test method, with prior approval from the Ohio EPA.

h. Emission Limitation:

0.77 ton of F- per rolling, 12-month period

Applicable Compliance Method:

This emission limitation was developed by multiplying the allowable F- emission limitation (0.021 pound of F- per ton of glass pull) by the maximum hourly averaged glass pull rate (8.4 tons per hour), and by the maximum annual hours of operation (8,760 hours), and then dividing by 2,000 pounds per ton. Therefore, if compliance is shown with the hourly limitation, compliance shall also be shown with the annual emission limitation.

i. Emission Limitation:

The combined emissions from P001 and P013, measured as a summation of the emissions for all exhaust stacks serving both forming areas, shall not exceed 5.18 tons of methanol per rolling, 12-month period.



Applicable Compliance Method:

This limit was established to reflect a maximum potential to emit for methanol. Actual methanol emissions at full production are expected to be less than 0.5 ton per year based on mass balance. If required, the company shall submit an updated mass balance demonstrating the actual methanol losses.

g) Miscellaneous Requirements

- (1) None.



**3. P017, Reclaim & Hammermill**

**Operations, Property and/or Equipment Description:**

Scrap fiber reclaim dryer

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) None.

b) Applicable Emissions Limitations and/or Control Requirements

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

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(A)(3)	1.5 pounds of filterable particulate emissions (PE) per hour
		4.35 tons of PE per year
		0.002 pound of SO <sub>2</sub> per hour
		0.27 pound of NO <sub>x</sub> per hour
		0.23 pound of CO per hour
		0.01 pound of VOC per hour
		See b)(2)a., b)(2)c., and b)(2)f.
b.	OAC rule 31-02(A)(2)	0.67 ton of CO per year
c.	OAC rule 3745-31-05(C)	0.04 ton of VOC per year
		0.79 ton of NO <sub>x</sub> per year
		0.006 ton of SO <sub>2</sub> per year
d.	OAC rule 3745-31-10 through 20	1.11 pounds of PM <sub>10</sub> per hour
		4.85 tons of PM <sub>10</sub> per year
e.	OAC rule 3745-17-07(A)(1)	See b)(2)b.
f.	OAC rule 3745-17-11(B)(1)	See b)(2)b.
g.	OAC rule 3745-18-06(E)	See b)(2)b.
h.	OAC rule 3745-21-07(B)	See b)(2)d.
i.	OAC rule 3745-21-08(B)	See b)(2)e.
j.	OAC rule 3745-23-06(B)	See b)(2)d.

(2) Additional Terms and Conditions

a. The requirements of OAC rule 3745-31-05(A)(3) also include compliance with the requirements of OAC rule 3745-17-07(A)(1), OAC rule 3745-31-02(A)(2), OAC rule 3745-31-05(C) and OAC rule 3745-31-10 through 20.



- b. The emission limitation specified by this rule is less stringent than the emission limitation established pursuant to OAC rule 3745-31-05(A)(3).
- c. The hourly emission limitations for the products of combustion were established for permitting purposes to reflect the potential to emit for this emissions unit. Therefore, it is not necessary to develop record keeping and/or reporting requirements to ensure compliance with these limitations.
- d. The permittee has satisfied the “latest available control techniques and operating practices” required pursuant to OAC rule 3745-21-07(B) and 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).
- e. 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.

- f. Visible particulate emissions from the stack servicing this emissions unit shall not exceed 10% opacity, as a 6-minute average.

c) Operational Restrictions

- (1) The permittee shall burn only natural gas as a fuel in this emissions unit.
- (2) The pressure drop across the baghouse shall be maintained within the range of 2 to 6 inches of water column while the emissions unit is in operation.
- (3) The emissions unit shall operate for no more than 5800 hours per rolling, 12-month period.

d) Monitoring and/or Recordkeeping 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 equipment to monitor the pressure drop across the baghouse while the emissions unit is in operation. The monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer’s recommendations, instructions, and operating manual(s). The permittee shall record the pressure drop across the baghouse on a daily basis.



- (3) The permittee shall record the rolling, 12-month summation of hours of operation for this emissions unit on a monthly basis.

e) Reporting Requirements

- (1) The permittee shall submit quarterly deviation (excursion) reports that identify each day when a fuel other than natural gas was burned in this emissions unit.
- (2) The permittee shall submit quarterly pressure drop deviation (excursion) reports that identify all periods of time during which the pressure drop across the baghouse did not comply with the allowable range specified above.
- (3) The permittee shall submit quarterly deviation (excursion) reports that identify any exceedance of the rolling, 12-month summation of operating hours specified above.

f) Testing Requirements

- (1) Compliance with the Emissions Limitations and/or Control Requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

a. Emission Limitation:

10% opacity, as a 6-minute average

Applicable Compliance Method:

If required, compliance shall be determined through visible emission observations performed in accordance with Method 9 of 40 CFR Part 60, Appendix A, using the methods and procedures specified in OAC rule 3745-17-03(B)(1); or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

b. Emission Limitation:

1.11 pounds of PM<sub>10</sub> per hour

Applicable Compliance Method:

If required, compliance shall be demonstrated based upon emission testing performed in accordance with Methods 201 and 202 of 40 CFR Part 51, Appendix M; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

c. Emission Limitation:

4.85 tons of PM<sub>10</sub> per year



Applicable Compliance Method:

Compliance is demonstrated by multiplying the short term emission rate of 1.11 pounds of PM<sub>10</sub> per hour by the annual hours of operation per year and dividing by 2,000 pounds per ton.

d. Emission Limitation:

0.23 pound of CO per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-1 dated 7/98, as follows: Divide the emission factor of 84 pounds of CO emissions per million standard cubic feet by a heating value of 1,020 Btu per standard cubic foot and multiply the result by the maximum heat input capacity of 2.7 MMBtu per hour.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 10 of 40 CFR Part 60 Appendix A; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

e. Emission Limitation:

0.67 ton of CO per year

Applicable Compliance Method:

Compliance is demonstrated by multiplying the short term emission rate of 0.23 pound of CO per hour by the annual hours of operation per year and dividing by 2,000 pounds per ton.

f. Emission Limitation:

0.27 pound of NO<sub>x</sub> per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-1 dated 7/98, as follows: divide the emission factor of 100 pounds of NO<sub>x</sub> emissions per million standard cubic feet by a heating value of 1,020 Btu per standard cubic foot and multiply the result by the maximum heat input capacity of 2.7 MMBtu per hour.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 7 of 40 CFR Part 60 Appendix A; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.



g. Emission Limitation:

0.79 ton of NO<sub>x</sub> per year

Applicable Compliance Method:

Compliance is demonstrated by multiplying the short term emission rate of 0.27 pound of NO<sub>x</sub> per hour by the annual hours of operation and dividing by 2,000 pounds per ton.

h. Emission Limitation:

0.002 pound of SO<sub>2</sub> per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-1 dated 7/98, as follows: divide the emission factor of 0.6 pounds of SO<sub>2</sub> emissions per million standard cubic feet by a heating value of 1,020 Btu per standard cubic foot and multiply the result by the maximum heat input capacity of 2.7 MMBtu per hour.

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 6 of 40 CFR Part 60 Appendix A, using the methods and procedures specified in OAC rule 3745-18-04; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

i. Emission Limitation:

0.006 ton of SO<sub>2</sub> per year

Applicable Compliance Method:

Compliance is demonstrated by multiplying the short term emission rate of 0.002 pound of SO<sub>2</sub> per hour by the annual hours of operation and dividing by 2,000 pounds per ton.

j. Emission Limitation:

0.01 pound of VOC per hour

Applicable Compliance Method:

Compliance may be determined through calculations based on emission factors specified in U.S. EPA reference document AP-42, Fifth Edition, Compilation of Air Pollution Emission Factors, Table 1.4-1 dated 7/98, as follows: divide the emission factor of 5.5 pounds of VOC emissions per million standard cubic feet by a heating value of 1,020 Btu per standard cubic foot and multiply the result by the maximum heat input capacity of 2.7 MMBtu per hour.



If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 4 and 25 of 40 CFR Part 60 Appendix A, using the methods and procedures specified in OAC rule 3745-21-10; or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

k. Emission Limitation:

0.04 ton of VOC per year

Applicable Compliance Method:

Compliance is demonstrated by multiplying the short term emission rate of 0.01 pound of VOC per hour by the annual hours of operation and dividing by 2,000 pounds per ton.

l. Emission Limitation:

1.5 pounds of PE per hour

Applicable Compliance Method:

If required, the permittee shall demonstrate compliance with this emission limitation through emission testing performed in accordance with Methods 1 through 5 of 40 CFR Part 60, Appendix A, using the methods and procedures specified in OAC rule 3745-17-03(B)(10); or other U.S. EPA approved test method, with prior approval from the Ohio EPA.

m. Emission Limitation:

4.35 tons of PE per year

Applicable Compliance Method:

Compliance is demonstrated by multiplying the short term emission rate of 1.5 pounds of PE per hour by the annual hours of operation, and dividing by 2,000 pounds per ton.

g) Miscellaneous Requirements

(1) None.